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SECTION A.3

AIR QUALITY DATA RECOVERY PERCENTAGES FOR ALL CONTINUOUSLY MONITORED PARAMETERS FOR THE RBOSP

JUNE 1975

Parameters	Site 1	Site 2	Site 3	Site 4
SO_2	95.83	96.81	96.81	98.89
H_2S	95.83	96.81	96.81	98.89
THC	88.47	96.67	95.42	97.92
CH_4	88.47	96.67	95.42	97.78
NO_X	95.83		94.17	
NO	95.83		94.17	
CO	92.08		96.94	
O_3	94.72		96.94	

JULY 1975

Parameters	Site 1	Site 2	Site 3	Site 4
SO_2	87.37	95.30	93.41	96.51
H_2S	87.37	95.30	93.41	96.51
THC	91.94	97.31	96.24	92.61
CH_4	91.94	97.31	96.24	92.61
NO_X	82.26		93.41	
NO	82.26		93.41	
CO	95.56		90.46	
O_3	96.91		92.47	

AUGUST 1975

Parameters	Site 1	Site 2	Site 3	Site 4
SO_2	94.89	97.85	93.15	87.77
H_2S	94.89	97.85	93.15	87.77
THC	95.16	97.85	87.10	93.28
CH_4	95.16	97.85	86.96	93.28
NO_X	97.85		76.34	
NO	97.85		76.08	
CO	97.58		50.67	
O_3	97.04		87.10	

SHOUT
SHARE
IT

NOTE: Percentage values are not adjusted for calibration or Force Majeure outages. Values represent the percent of time continuously monitored parameters were measured.

SO_2	Sulfur Dioxide Concentration
H_2S	Hydrogen Sulfide Concentration
THC	Total Reactive Hydrocarbons Concentration
CH4	Methane Concentration
NO_x	Total Nitrogen Oxides Concentration
NO	Nitric Oxide Concentration
CO	Carbon Monoxide Concentration
O_3	Ozone Concentration

PROGRESS REPORT 4

GEOTECHNICAL DATA GATHERING PROJECT

GEOLOGIC PROGRAM

SECTION 1.1

TO

AREA OIL SHALE SUPERVISOR
UNITED STATES GEOLOGICAL SURVEY

By

RIO BLANCO OIL SHALE PROJECT
Gulf Oil Corporation
and
Standard Oil Company (Indiana)

October 15, 1975

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Seismic Program. 1.1.8
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SECTION 1.0

1.0 GEOTECHNICAL DATA GATHERING PROJECT

The Geotechnical Data Gathering Project consists of tasks conducted under the Geologic Program and the Hydrologic Program. RBOSP Progress Report 2 - Summary described the Geotechnical Data Gathering Project in detail.

The major activity during this reporting period for the Geologic Program involved the correlation, interpretation and refinement of data for input to the DDP. The rock mechanics testing has been completed; however, a report containing the results of the rock mechanics tests has not at present been completed. The other tasks of the Geologic Program are for the most part complete. A status of each of the tasks of the Geologic Program are presented in the following sections.

Activity under the Hydrologic Program included the hydrologic baseline data gathering tasks as well as interpretation of the pumping test data. The Hydrologic Program has been slightly modified in that section 1.2.9, Dewatering Analysis has been removed from the Hydrologic Program scope of work and added to the scope of work of the engineering studies. The dewatering analysis will be reported in the DDP. Section 1.2.8, Data Input to Mathematical Model, has been redesignated Hydrologic Program - Summary and Analysis. The data from the Hydrologic Program is submitted to the Area Oil Shale Supervisor in the following parts of RBOSP Progress Report 4: Interpretive Text, Interpretive Text Appendix, and Raw Data.

SECTION 1.1

1.1 Geologic Program

Most of the tasks conducted under the Geologic Program are essentially complete. Confirmation oil shale assaying of some of the oil shale core intervals of coreholes G-S 4-5 and G-S 6 indicated that some of the sample intervals from these coreholes would have to be reassayed as the confirmation testing disclosed some discrepancies. Rock mechanics testing has been completed; however, the final report on the results of the rock mechanics testing is still being written. The following sections up date the status of each of the tasks.

SECTION 1.1.1

1.1.1 Corehole Program

The corehole program is complete as reported in RBOSP Progress Report 2 - Summary. The drilling locations have been graded and fenced prior to seeding in the fall as requested by the Area Oil Shale Supervisor.

SECTION 1.1.2

1.1.2 Laboratory Analysis

All laboratory analyses have been completed. The results of the laboratory analyses for oil shale grade, nahcolite, extractable alumina, gas and trace elements have been reported to the Area Oil Shale Supervisor. The report of the results of the rock mechanics testing is still being written. It is anticipated that the rock mechanics data will be submitted in RBOSP Progress Report 5.

During the quarterly reporting period correlation of oil shale assay data with respect to stratigraphy showed unexpected differences in assay results of the lower portions of two coreholes, G-S 4-5 and G-S 6. Subsequently a total of 45 confirmation assays were run on samples from these two coreholes. A significant disagreement between the results of the original assay of the core samples and the rerun assays of the same core samples was detected. As a result, core intervals in the lower portion of both coreholes G-S 4-5, and G-S 6 are being re-assayed. The results of the re-assays will be reported in the appropriate (timely) progress report.

SECTION 1.1.3

1.1.3 Stratigraphic Compilation

The stratigraphic compilation has been completed as reported in RBOSP Progress Report 2 and updated as reported in RBOSP Prgress Report 3. There has been no new activity to report in RBOSP Progress Report 4.

1.1.4 Aerial Photography

Arrangements have been made for aerial photography of an additional 8200 acres covering the 84 Mesa area north of Tract C-a. The photography will be used in the detailed topographic mapping of 84 Mesa.

SECTION 1.1.5

1.1.5 Compilation of Topographic Maps

New topographic mapping of approximately 8200 acres in the 84 Mesa area will be compiled after black and white aerial photography has been completed.

SECTION 1.1.6

1.1.6 Photogeologic Mapping

Photogeologic mapping has been completed as reported in RBOSP Progress Report 2 and RBOSP Progress Report 3.

SECTION 1.1.7

1.1.7 Surface Geologic Mapping

The surface geologic mapping of about ten square miles was completed as reported in section 1.1.7 of RBOSP Progress Report 2.

SECTION 1.1.8

1.1.8 Seismic Program

The seismic program was discontinued as reported in section 1.1.8 of RBOSP Progress Report 2.

SECTION 1.1.9

1.1.9 Structural Compilation

Two additional faults have been observed in the northwest corner of Tract C-a. Several other fault interpretations were changed to a minor degree. A middle A-groove structure map is being revised accordingly and will be submitted as a part of the DDP.

PROGRESS REPORT 4

GEOTECHNICAL DATA GATHERING PROJECT

HYDROLOGIC PROGRAM

SECTION 1.2

INTERPRETIVE TEXT

OCTOBER 15, 1975

TO

AREA OIL SHALE SUPERVISOR
UNITED STATES GEOLOGICAL SURVEY

By
WRIGHT WATER ENGINEERS, INC.
For
GULF OIL CORPORATION
And
STANDARD OIL COMPANY (INDIANA)

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HYDROLOGIC PROGRAM, SECTION 1.2

SURFACE WATER DATA COLLECTION PROGRAM[1]

Station	Discharge		Water Quality		Precipitation	
	Instantaneous	Continuous	Data	Summary	Recording	Storage
Dry Fork						R4
Corral Gulch (West line Tract C-a)	R2, R3 R3V1, R4		R3V1	R3R4		R4
Box Elder Gulch	R2		R3V1	R4		R4
Corral Gulch (East of Tract)	R3, R3V1 R4		R3V1	R3 R4	R3,R3V1 R4	
Stake Springs Draw						
Yellow Creek	R2,R3 R3V1, R4		R3V1	R3 R4	R3,R3V1 R4	
Rinky Dink Gulch						
Near Cathedral Bluffs					R3;R3V1 R4	

---

[1] LEGEND

APPLIES TO ALLUVIAL AQUIFER DATA & DEEP AQUIFER DATA PROGRAM

R	RBOSP PROGRESS REPORT, HYDROLOGIC PROGRAM
V	RBOSP HYDROLOGIC PROGRAM RAW DATA VOLUME
A	RBOSP PROGRESS REPORT, HYDROLOGIC PROGRAM, INTERPRETIVE TEXT APPENDIX

e.g. R3V1 RBOSP PROGRESS REPORT NO. 3, HYDROLOGIC PROGRAM
RAW DATA VOLUME 1

ALLUVIAL AQUIFER DATA

			WATER QUALITY		
Test Hole	Drilling	Water Level	Field Data pH, Cond. Temp.	Lab Analysis	Summary
S-6*					
S-7	R2A	R3,R4	R3, R4	R3V1,R4V1	R3, R4
S-8	R2A	R3,R4	R3, R4	R3V1,R4V1	R3, R4
S-11	R2A	R3,R4	R3, R4	R3V1,R4V1	R3, R4
S-12	R2A	R3,R4	R3, R4	R3V1,R4V1	R3, R4
S-13*	R2A				
S-14*	R2A				
S-15*	R4A				
S-16*	R4A				
S-17*	R4A				
S-18*	R4A				
S-19	R4A	R4	R4	R4V1	R4
S-22	R4A	R4	R4	R4V1	R4
S-23	R4A	R4	R4	R4V1	R4
S-24	R4A	R4	R4	R4V1	R4

* The test holes that are not referenced are dry, see Text R3 and R4

DEEP AQUIFER PROGRAM DATA

WATER QUALITY

TEST HOLE	DRILLING		PUMPING TEST		MONITORING		
	FIELD ANALYSIS COND., pH, TEMP.	LAB ANAYLSIS	FIELD ANALYSIS COND.,pH, TEMP.	LAB ANALYSIS	LAB ANALYSIS	SUMMARY OF LAB ANALYSIS	CHEMICAL CONSISTENT DISTRIBUTION MAPS
AM-2A		R3V1			R3V1,R4V1	R3,R4	R4;R4V1
AM-3		R3V1			R3V1,R4V1	R3,R4	R4;R4V1
AM-4		R3V1				R3,R4	R4;R4V1
CE-701		R3V1				R3,R4	R4;R4V1
CE-702		R3V1			R3V1,R4V1	R3,R4	R4;R4V1
CE-703		R3V1				R3,R4	R4;R4V1
CE-705A		R3V1	R3	R3V1		R3,R4	R4;R4V1
CE-707		R3V1			R3V1,R4V1	R3,R4	R4;R4V1
CE-708		R3V1			R3V1,R4V1	R3,R4	R4;R4V1
CE-709		R3V1			R3V1,R4V1	R4V1	R4;R4V1
G-S 1	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S 2-3	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S 4-5	R2A	R3V1	R3	R3V1	R3V1,R4V1	R3,R4	R4;R4V1
G-S 6	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S 7	R2A	R3V1				R3,R4	R4;R4V1
G-S 8	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S 9	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S 10	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S 11	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S 12	R2A	R3V1	R3	R3V1	R3V1,R4V1	R3,R4	R4;R4V1
G-S 13	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S 14	R2A	R3V1				R3,R4	R4;R4V1
G-S 15	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S D16	R2A	R3V1	R3	R3V1		R3,R4	R4;R4V1
G-S D17	R2A	R3V1	R3	R3V1		R3,R4	R4;R4V1
G-S D18	R2A	R3V1	R3	R3V1		R3,R4	R4;R4V1
G-S D19	R2A	R3V1	R3	R3V1		R3,R4	R4;R4V1
G-S M1	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S M2	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S M3	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S M4	R2A	R3V1			R3V1,R4V1	R3,R4	R4;R4V1
G-S M5	R4	R4V1			R4V1	R4	
TO 1					R3V1,R4V1	R3,R4	R4;R4V1
TO 2					R3V1,R4V1	R3,R4	R4;R4V1
TO 3			R3	R3V1	R3V1	R3,R4	R4;R4V1

DEEP AQUIFER PROGRAM DATA

COMPLETIONS			GEOHYDROLOGIC DATA				
			AQUIFER		DRILLING		
					Geophysical		
TEST HOLE	Test Hole Cross Sections	Pump Installations	Hydrologic Cross Section	Aquifer Thickness Maps	Water Velocity, Water Movement & Temp. vs. Depth	Water Production	Informal Recovery Tests
AM-2A	R2A		R2	R4			
AM-3	R2A		R2	R4			
AM-4	R2A		R2	R4			
CE-701	R2A	R3	R2	R4			
CE-702	R2A		R2	R4			
CE-703	R2A			R4			
CE-705A	R2A	R3	R2	R4			
CE-707	R2A		R2	R4			
CE-708	R2A		R3	R4			
CE-709	R2A		R3	R4			
G-S 1	R2A		R2	R4	R2A	R2A	R2A
G-S 2-3	R2A		R2	R4	R2A	R2A	R2A
G-S 4-5	R2A	R3	R2	R4	R2A	R2A	R2A
G-S 6	R2A		R2	R4	R2A	R2A	R2A
G-S 7	R2A		R2	R4	R2A	R2A	R2A
G-S 8	R2A		R2	R4	R2A	R2A	R2A
G-S 9	R2A		R2	R4	R2A	R2A	R2A
G-S 10	R2A		R2	R4	R2A	R2A	R2A
G-S 11	R2A		R2	R4	R2A	R2A	R2A
G-S 12	R2A	R3	R2	R4	R2A	R2A	R2A
G-S 13	R2A		R2	R4	R2A	R2A	R2A
G-S 14	R2A		R2	R4	R2A	R2A	R2A
G-S 15	R2A		R2	R4	R2A	R2A	R2A
G-S D16	R2A	R3	R2	R4		R2A	
G-S D17	R2A	R3	R2	R4		R2A	
G-S D18	R2A	R3	R2	R4		R2A	
G-S D19	R2A	R3	R2	R4		R2A	
G-S M1	R2A		R2	R4	R2A	R2A	R2A
G-S M2	R2A				R2A	R2A	R2A
G-S M3	R2A				R2A	R2A	R2A
G-S M4	R2A				R2A	R2A	R2A
G-S M5	R4					R 4	
TO 1	R2A		R2	R4			
TO 2	R2A		R2	R4			
TO 3	R2A		R2	R4			

DEEP AQUIFER PROGRAM DATA

	GEOHYDOLOGIC DATA						
	PUMPING TESTS				MONITORING PROGRAM		
TEST HOLE	WATER LEVEL DRAWDOWN DATA	SEMI-LOG DRAWDOWN PLOTS	TRANSMISSIVITY AND STORAGE COEF.	TRANSMISSIVITY AND PERMEABILITY MAPS	WATER LEVELS	HYDROGRAPHS	PIEZOMETRIC SURFACE MAPS
AM-2A	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
AM-3	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
AM-4							
CE-701	R3V3	R3A			R3V2	R3A,R4A	R4
CE-702	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
CE-703							
CE-705A	R3V3	R3A	R3	R4	R3V2	R3A,	R4
CE-707	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
CE-708	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
CE-709	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S 1	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S 2-3	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S 4-5	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S 6	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S 7							
G-S 8	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S 9	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S 10	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S 11	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S 12	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S 13	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S 14							
G-S 15	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S D16	R3V3	R3A	R3	R4	R3V2	R3A	R4
G-S D17	R3V3	R3A	R3	R4	R3V2	R3A	R4
G-S D18	R3V3	R3A	R3	R4	R3V2	R3A	R4
G-S D19	R3V3	R3A	R3	R4	R3V2	R3A	R4
G-S M1	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
G-S M2	R3V3	R3A	R3		R3V2	R3A,R4A	
G-S M3	R3V3	R3A	R3		R3V2	R3A,R4A	
G-S M4	R3V3	R3A	R3		R3V2	R3A,R4A	
G-S M5							
TO 1	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
TO 2	R3V3	R3A	R3	R4	R3V2	R3A,R4A	R4
TO 3	R3V3	R3A	R3	R4	R3V2	R3A	R4

1.2 HYDROLOGIC PROGRAM

Rio Blanco Oil Shale Project is conducting a surface and subsurface Hydrologic Program to establish baseline hydrologic data and to supply the data required to design mine dewatering. RBOSP Progress Report 2 presented the hydrologic data obtained during the corehole drilling program. RBOSP Progress Report 3 presented the data collected during formal pump testing. This progress report will present continuing data collected from the hydrologic monitoring program, data from the drilling of monitor hole 5, as well as hydrologic interpretive analyses. Interpretive information based on data collected to date in this report includes recharge and leakage effects, permeability, apparent velocities, piezometric levels, transmissivity areal plots and Theis and Jacob plot analysis. In addition, areal distribution of selected chemical constituents are also plotted.

RBOSP Progress Report 4 submits the data generated from the Hydrologic Program to the Area Oil Shale Supervisor in two parts. Those parts are: 1) Interpretive Text, and 2) Raw Data. The Interpretive Text contains interpretation and explanation of the hydrologic data while the Raw Data portion contains computer printouts of the raw field data. The raw field data was digitized for ease of storage and recall and to provide input to various computer programs.

Hydrologic data collection began with the drilling and coring operations by RBOSP in July 1974. Previous hydrologic baseline data collected in the area is contained in "Phase II, Preliminary Dewatering Analysis Report, Cameron Engineers, November, 1972" and "Phase II, Preliminary Hydrogeologic Report for AMOCO, December, 1973," and RBOSP Progress Reports 2 and 3, Section 1.2 Hydrologic Program. Wright Water Engineers, Inc., Denver, Colorado has been compiling the hydrologic data on behalf of RBOSP.

SECTION 1.2

1.2.1 SURFACE WATER MONITORING STATIONS

As part of the environmental baseline monitoring program, RBOSP has contracted with the Colorado River Water Conservation District to have Water Resources Division of the USGS construct 11 surface water monitoring stations. Six of these stations have been in operation since March of 1974. The Rinky Dink Gulch Station has been in operation since November 1974. The four new gaging stations monitoring the 84 Mesa area are presently under construction, however, it should be noted that monitoring has been carried out for the past several months. Table 1.2.1 gives the USGS identification number and location for the 11 surface stream gaging stations and the 6 rain gaging stations.

Table 1.2-2 shows the data collection schedule for the 11 stream gaging stations. It should be noted, however, that, to date, continuous temperature and specific conductance data have not been received from the USGS. In addition, we are also waiting to receive the sediment discharge data for 1975 which we understand will be forthcoming at the end of the water year. The results of the data collection program are in Section 1.2.2 of this report.

SECTION 1.2.1

TABLE 1.2-1

LOCATION AND USGS IDENTIFICATION NUMBERS FOR SURFACE AND RAIN GAGING STATIONS

USGS Identification Number	Location
09306237	Dry Fork near west line Tract C-a
09306235	Corral Gulch near west line Tract C-a
09306240	Box Elder Gulch near west line Tract C-a
09306242	Corral Gulch east of Tract C-a
09306230*	Stake Springs Draw near confluence with Corral Gulch
09306255	Yellow Creek near White River, Colorado
09306241	"Rinky Dink" Gulch near east line Tract C-a
09306248	Upper Big Duck Creek north of 84 Mesa
09306250	Lower Big Duck Creek north Of 84 Mesa
09306246	Tributary to Yellow Creek east of 84 Mesa
09306244	Corral Gulch south of 84 Mesa
	Rain Storage-Type Gages
09306235	Corral Gulch near west line Tract C-a
09306237	Dry Fork near west line Tract C-a
09306240	Box Elder Gulch near west line Tract C-a
	Recording Rain Gage
09306230	Stake Springs Draw near confluence with Corral Gulch
09306255	Yellow Creek near White River, Colorado
No number	Cathedral Bluffs located in NW 1/4, NW 1/4, Sec. 14, T2S, R100W

*Given incorrectly in RBOSP Reports 2 and 3

TABLE 1.2-2

DATA COLLECTION SCHEDULE FOR STREAM GAGING STATIONS

CONTINUOUSLY OR AUTOMATICALLY

- Flow Rate
- Sediment Discharge
- Temperature
- Specific Conductance

PERIODICALLY

- Storage Rain Gages
- Recording Rain Gages

SEMI-MONTHLY

Water Samples Analyzed for:

- Barium
- Boron
- Calcium
- Chromium (Hexavalent)
- Copper
- Fluoride
- Iron
- Lithium
- Magnesium
- Potassium
- Selenium
- Silica
- Sodium
- Sulfate
- Zinc
- Ammonia
- Bicarbonate
- Carbonate
- Chloride
- Color
- Dissolved Solids
- Kjeldahl Nitrogen
- Nitrate
- Nitrite
- Odor
- Oil and Grease
- Turbidity
- Dissolved Oxygen
- pH
- Arsenic
- Cadmium
- Lead
- Manganese
- Mercury
- Total Phosphate
- Ortho Phosphate
- Cyanide
- Sulfide

QUARTERLY

Sample and Analyze:

- COD
- Fecal Coliform
- Pesticides
- Polycyclic Aromatics
- Radioactivity
  - Gross Alpha
    - 4 picocuries/l
    - Ra^{226}
  - Gross Beta
    - 100 picocuries/l
    - Th^{230}
    - Uranium
- Spectrographic Scan
  - 67 Elements
- TOC
  - 10 mg/l
  - DOC
  - SOC
  - Phenols
  - Sulfur
  - Nitrogen

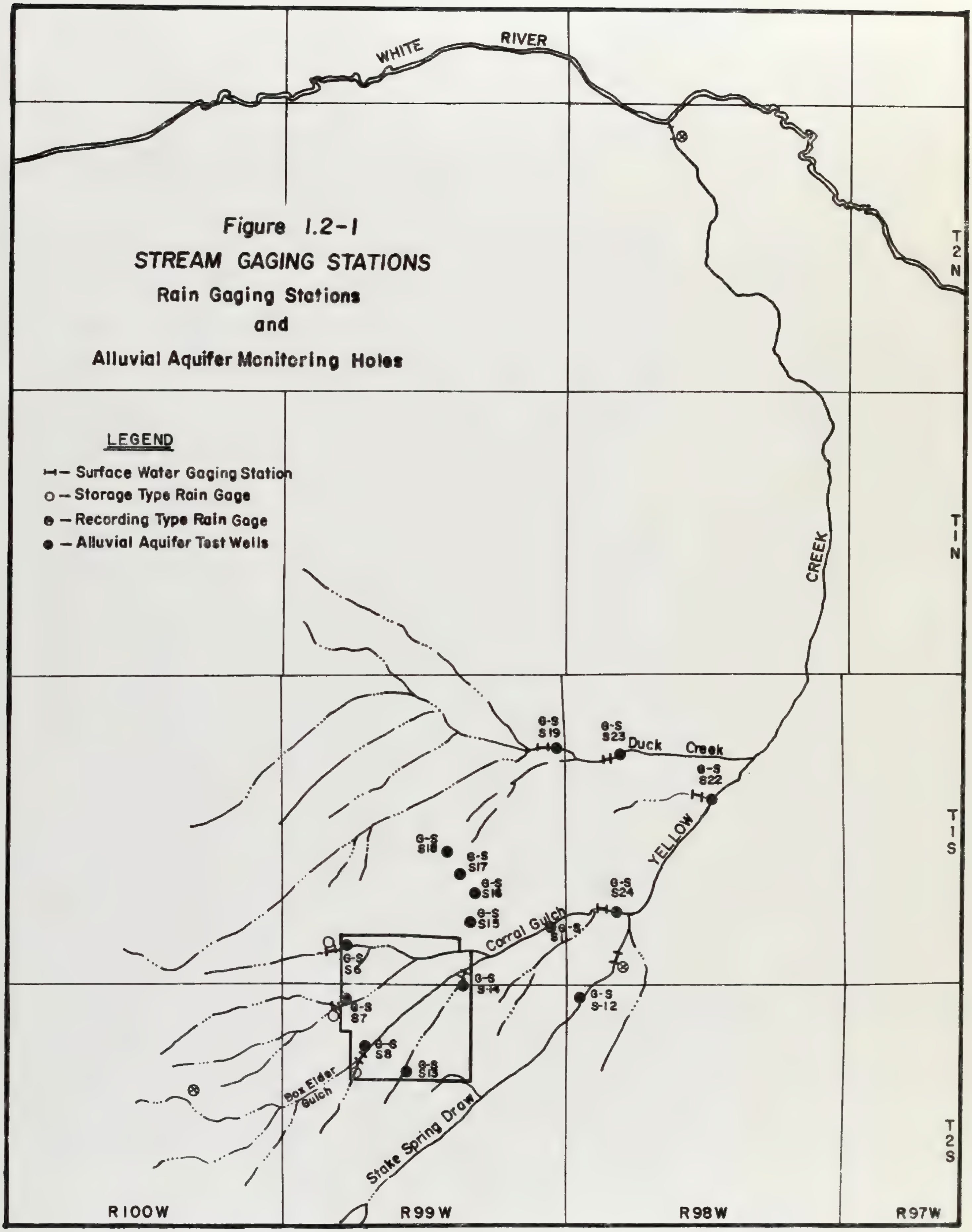


Figure 1.2-1
STREAM GAGING STATIONS
Rain Gaging Stations
and
Alluvial Aquifer Monitoring Holes

LEGEND
⊢⊣ – Surface Water Gaging Station
○ – Storage Type Rain Gage
⊗ – Recording Type Rain Gage
● – Alluvial Aquifer Test Wells
WHITE RIVER
CREEK
YELLOW
Duck Creek
G-S S19
G-S S23
G-S S22
G-S S18
G-S S17
G-S S16
G-S S15
G-S S24
Corral Gulch
G-S S1
G-S S6
G-S S-14
G-S S7
G-S S8
G-S S13
G-S S-12
Box Elder Gulch
Stake Spring Draw
T2N
T1N
T1S
T2S
R100W
R99W
R98W
R97W

SECTION 1.2.2

1.2.2 SURFACE WATER DATA COLLECTION

The surface water data received by RBOSP, collected in 1974, are presented in RBOSP Reports No. 2 and 3. Report No. 3 also contains in the Raw Data Volume I copies of the USGS computer print-outs for the analysis of the various chemical constituents. It should be noted that the Raw Data Volume of this Report contains only the 1975 data received to date. The four stations connected with 84 Mesa have been monitored since April 16, 1975. The first samples were collected June 12, 1975.

With the exception of the four 84 Mesa gaging stations, only four stations recorded any discharge during the period beginning in May and ending in August 1975. These four stations are Corral Gulch and Box Elder Gulch near the west line of Tract C-a, Corral Gulch east of Tract C-a and Yellow Creek near the White River. Tables 1.2-3 through 1.2-6 show the amount of the various chemical constituents as reported by the USGS during this period. It should be noted that these data are preliminary and therefore subject to corrections and revisions. As of this date, RBOSP has yet to receive data from the continuous monitoring of temperatures and conductivity from the USGS. This data will be reported when it is received.

As previously noted, the first runoff event for the 84 Mesa gaging stations occurred June 12, 1975. Since this time, several other runoff events have occurred, however, at this time, the data have not been reported to RBOSP. It is anticipated that the information will be available for the next quarterly report.

Review of the USGS instantaneous discharge conductivity, boron and fluoride data for May through August was made for the gaging stations at Box Elder Gulch, Corral Gulch east of Tract C-a and west of Tract C-a, and the station on Yellow Creek near the White

River. The Box Elder Gulch Station recorded flow only during May and June 1975 having an average instantaneous discharge of 0.5 cfs. Discharge at Corral Gulch east of the Tract dropped back to a median level of about 1.2 cfs after reaching a relatively sudden high of 3 cfs in May due to spring runoff. Corral Gulch west of the Tract recorded a samll and broad increase and decrease from mid-May through mid-July. A peak of about .2 cfs in late June was reached from a previous base of less than .01 cfs. The last recorded value of .1 cfs indicated a trend back to a barely detectable amount. Discharge in Yellow Creek near White River has been more variable with a low of about 1.1 cfs being reached after a down trend from a peak of 3.3 cfs. A somewhat strong increase which reached 1.7 cfs in mid-July occurred from the low in June. Thereafter, a rapid return to the low of 1.1 cfs was recorded.

Conductivity, as recorded by the USGS for the four stations mentioned, presents a relatively stable picutre. At Box Elder Gulch, conductivity ranged from 800 to 750 umhos/cm. At Corral Gulch west of the Tract, a slight drop from 1100 to 980 umhos/cm occurred in late May. A recovery to the former value of 1100 took place from May through July. Corral Gulch east of the Tract has been on a downward trend from a late May value of 1500 umhos/cm to a late July recording of about 1100 umhos/cm. Yellow Creek values have been most variable and consistently highest with a peak value being reached in late June of 4200 umhos/cm from a low of 3000 umhos/cm in late May. July values indicate a downward trend to 3500 umhos/cm near mid-month and then an upward trend to 4400 umhos/cm in mid-August.

Boron values have been stable and close to the corresponding median values in Yellow Creek, .7 ppm, and Corral Gulch (.1 ppm) west of the Tract. In Corral Gulch east of the·Tract, boron values fluctuated from .2 ppm to .7 ppm in April and May with a fairly stable trend at 0.16 ppm indicated from mid-June to late

July. Boron concentrations in Box Elder Gulch decreased from 1.0 ppm in May to 0.7 ppm in late June.

Fluoride in Corral Gulch west of the Tract has been stable at .3 ppm from late May through July. Yellow Creek values fluctuated from 1.8 ppm to 2.5 ppm during the same period. Corral Gulch east of the Tract has had wide fluctuations. A low in mid-May of .4 ppm was rapidly replaced by a value of 2.8 ppm in late May. A sudden decrease to .5 ppm occurred by mid-June. Thereafter, through late July, a relatively stable .5 ppm value has been reported. Box Elder Gulch fluoride values are 0.3 ppm.

Examples of constituents that increase in concentration by orders of magnitude from gaging stations around Tract C-a to the gaging stations at the mouth of Yellow Creek include alkalinity, barium, boron, bicarbonate, chloride, sodium and sulfate. Conductivity and total dissolved solids also increased at least four times.

Summary water analyses for stream gaging stations at Box Elder Gulch, Corral Gulch west and east of the Tract, and Yellow Gulch are presented in Table 1.2-3 through 1.2-6. Upon comparison of samples taken on or near Tract C-a to that of the station at Yellow Creek near White River, water quality varies substantially. In general, stream flows from the Tract pick up their contaminants along their way to the mouth of Yellow Creek, and the water quality deteriorates with increase in surface flow distance.

During the pumping tests of the upper and lower aquifers, discharge water contributed to the flow of existing streams. Water from the pumping tests infiltrated into the stream beds and disappeared within a maximum distance of 4 miles from the point of discharge. Discharge water for G-S D17 which was pumped at 275 gpm flowed down Dry Fork into Corral Gulch and past the hunting club, but did not reach the road 1/4 mile above Tract Headquarters at G-S D18 (Figure 1.2-10). During the pumping period in January there was considerable build-up of ice on the road in Dry Fork to G-S D17 due to freezing of discharge water. G-S D16 was pumped at 123 gpm (0.27 cfs). The discharge entered Box Elder Creek just below the upper Box Elder Creek Flume and joined natural flow in the creek (less than 0.05 cfs discharged from a spring 50 feet above the flume). The combined flow disappeared approximately 1/4 mile above G-S D19.

Discharge from pumping CE-705A on the G-S D19 location at 264 gpm (0.59 cfs) did not reach the area of the lower flume on Box Elder Creek (Figure 1.2-10).

The first pumping test of G-S D19 at 667 gpm (1.49 cfs) resulted in a flow of 1.17 cfs at the lower Box Elder Gulch flume and an increased flow of 0.9 cfs at the USGS gaging station on Corral Gulch at the east edge of the Tract. Before pumping began, Box Elder Gulch from G-S D19 downstream was dry. The USGS gaging station had flow due to a spring above it. The data from the two Wright Water Engineer's flumes on Box Elder Gulch and the Water Resources Division of USGS flume above 84 Ranch which were monitored daily and the provisional continuous flow data from the USGS gaging station east of the Tract are shown in Figure 1.2-11. During the second test of G-S D19 flume readings were affected by stream runoff from above the discharge point as seen in the upper Box Elder Creek flume.

The pumping of G-S D19 does not appear to have had any affect on the flows at the flume near the 84 Ranch. The drop in readings of the 84 Ranch flume after May 27, 1975 are due to flow being diverted to an irrigation canal directly above the flume. There was not flow in Corral Gulch at its junction with Stake Springs Draw during any of the pumping.

There are two types of precipitation gages used for collecting data by RBOSP. The first type is known as a storage precipitation gage. Precipitation is collected and measured periodically, therefore, this type of gage only gives information as to how much precipitation has fallen during the period. The second type of precipitation gage is the recording type gage. This equipment allows the measurement of precipitation over a much shorter period of time, therefore, rates of precipitation, such as inches per hour, are measured.

Precipitation recorded by storage type rain gages from January through July, 1975, shows the amount of rainfall during the period. Figures 1.2-12 through 1.2-14 are plots of precipitations. Average storage rain recorded on the Tract was 0.5 inch.

Both Dry Fork and Corral Gulch indicated peak amounts occurred in May, while the Box Elder Gulch Station reached its maximum between March and April. This indicates localized rain showers are prevalent. Correlation between stations indicates a dry period in early July, in which time no rainfall was recorded in Dry Fork and Box Elder Gulch Station, and below average rainfall was measured at Corral Gulch Station.

Precipitation collected by recording rain gages from January through May 1975 are described in Progress Report 3. During the time period from June to July, there were no records from the precipitation gaging station near Cathedral Bluff because of equipment malfunction. Correlation between the gaging station at Stake Springs Draw and the station on Yellow Creek near White River indicates there was less instantaneous moisture fall during June as compared to May. Instantaneous peak amounts to date this year were recorded by these stations in mid-July with 1.19 inches recorded in a 24 hour period at Stake Springs Draw gaging station. During this same period of time, the Yellow Creek Station recorded about .48 inches. This variation in amounts between stations indicates that local thunker showers were prevalent over the area. Figures 1.2-12 through 1.2-20 show precipitation data available to date.

TABLE 1.2-3

SUMMARY WATER ANALYSIS

STREAM GAGING STATION, USGS 09306235

CORRAL GULCH NEAR WEST LINE TRACT C-a

	3/12/75	3/16/75	4/9/74	4/23/75	5/14/74	5/28/75	6/11/75	6/24/75	7/15/75			
1. Alkalinity (mg/l)			324	301	291	322	318	305	312			
2. Aluminum (ug/l)			---	---	---	---	---	---	---			
3. Ammonia (mg/l)			.12	.00	.04	.00	.00	.05	.04			
4. Aromatics, Polycyclic			---		---							
5. Arsenic (ug/l)			4	5	4	9	4	4	4			
6. Barium (ug/l)			100	0	100	0	100	0	200			
7. Beryllium (ug/l)			---		---							
8. Bicarbonate (mg/l)			395	367	355	393	388	372	380			
9. Bismuth (ug/l)			---		---							
10. Boron (ug/l)			90	100	90	90	90	100	80			
11. Cadmium (ug/l)			0	1	0	0	0	0	0			
12. Carbonate (mg/l)			0	0	0	0	0	0	0			
13. Carbon Dioxide (mg/l)			2.0	2.3	11	32	4.9	1.2	2.4			
14. Chloride (mg/l)			7.8	9.2	5.9	6.8	5.9	7.0	8.3			
15. Chromium (ug/l)			0	0	0	0	0	0	0			
16. Cobalt (ug/l)												
17. COD												
18. Coliform, Total & Fecal												
19. Color (PVC)			9	3	10	7	8	8	15			
20. Conductivity, Specific			1080	1100	1100	900	1050	1100	1200			
21. Copper (ug/l)			8	3	2	1	-	4	0			
22. Cyanide (mg/l)			.00	.01	.01	.00	.00	.01	.00			
23. Discharge (CFS)												
24. Discharge, Instantaneous			.04	.03	.02	.10	---	.18	.10			
25. Dissolved Oxygen (mg/l)			---	7.0	8.7	9.1	5.6	6.4	7.0			
26. Fluoride (mg/l)			.2	.2	.2	.2	.3	.3	.3			
27. Gallium (ug/l)												
28. Germanium (ug/l)												
29. Hardness (Ca, Mg) (mg/l)			460	430	420	460	560	450	460			
30. Hardness, Non-Carbonate (mg/l)			140	130	130	140	140	140	150			
31. Iron (ug/l)			50	20	20	80	30	10	30			
32. Kjeldahl Nitrogen (mg/l)			4.2	.36	.30	1.0	.89	.25	.65			
33. Lead (ug/l)			0	3	1	2	0	2	0			
34. Lithium (ug/l)			20	10	20	20	10	20	10			
35. Magnesium (mg/l)			60	59	56	58	61	60	62			
36. Manganese (ug/l)			0	0	0	20	0	0	0			
37. Mercury (ug/l)			1.0	.0	.00	.0	.0	.0	.0			
38. Molybdenum (ug/l)			---		---							
39. Nickel (ug/l)			---		---							
40. Nitrate (mg/l)			4.3	2.8	2.2	4.4	6.6	5.3	4.0			
41. Nitrite (mg/l)			.00	.03	.00	.00	.03	.00	.03			
42. Nitrite Plus Nitrate (mg/l)			.98	.64	.50	1.0	1.5	1.2	.91			
43. Nitrogen, Ammonia			.09		.03							
44. Odor (Severity)			1	0	0	0	0	0	0			
45. Oil & Grease (mg/l)			3	---	0	2	1	3	4			
46. Ortho-Phosphate (mg/l)			.06	.06	.06	.06	.00	.03	.06			
47. Ortho-Phosphorus (mg/l)			.02	.02	.02	.02	.00	[illegible]	.02			
48. Pesticides												
49. pH			8.5	8.4	7.7	7.3	8.1	8.7	8.4			
50. Phosphorus, Total (mg/l)			1.3	.06	.03	.07	.20	.01	.03			
51. Potassium (mg/l)			1.6	1.5	1.5	1.4	1.1	1.0	1.5			
52. Selenium (ug/l)			4	4	4	5	3	5	4			
53. Silica (mg/l)			19	20	19	23	23	22	21			
54. Silver (ug/l)			---		---							
55. Sodium (mg/l)			86	90	91	75	49	80	77			
56. Sodium Adsorption Ratio			1.7	1.9	1.9	1.5	1.0	1.6	[illegible]			
57. Sodium (%)			29	31	32	26	19	[illegible]	29			
58. Solids, Dissolved (mg/l)			729	719	719	709	663	699	734			
59. Solids, Dissolved T/D			.08	.06	.04	.19	---	.34	.20			
60. Solids, Dissolved T Ac-Ft			.99	.98	.98	.96	.90	.95	1.00			
61. Solids, Suspended												
62. Strontium (ug/l)			---		---							
63. Sulfate (mg/l)			2.70	230	2.90	260	240	260	280			
64. Sulfide (mg/l)			.2	.0	.0	.0	.1	.0	.0			
65. Temperature (°C)			2.0	21.0	20.0	[illegible]	19.0	18.0	[illegible]			
66. Tin (ug/l)			---		---							
67. Titanium (ug/l)			---		---							
68. Turbidity			450	15	18	75	120	13	17			
69. Vanadium (ug/l)			---		---							
70. Zinc (ug/l)			20	0	10	0	10	6	0			
71. Zirconium (ug/l)			---		---							
72. Calcium (mg/l)			85		76							
73. Complete Element Span												
74. Radioactivity												
Gross Alpha (pci)												
Radium 226*												
Gross Beta												
Thorium 230**												
Uranium**												
75. Total Organic Carbon (mg/l)			---		---							
If TOC > 10 mg/liter, then												
Nitrogen (Base Extraction)												
Organic Carbon, Dissolved												
Organic Carbon, Suspended												
Phenols												
Sulfur (Acid Extraction)												
76. Total Ortho-Phosphorus (mg/l)			.45	.01	.04	[illegible]	.01	[illegible]	[illegible]			
77. Phosphate			---	.18	[illegible]	1	.61	.03	[illegible]			

TABLE 1.2-4

SUMMARY WATER ANALYSIS

STREAM GAGING STATION, USGS 09306242

CORRAL GULCH EAST OF TRACT

Date	3/12/75	3/26/75	4/9/75	4/9/75	4/23/75	5/14/75	5/28/75	6/11/75	6/24/75	7/15/75	7/30/75	
Time	1100	1415	1045	1100	1100	1245	1430	1545	1450	1230	1110	
1. Alkalinity (mg/l)	417	---	---	739	603	421	668	373	401	389	381	
2. Aluminum (ug/l)	20	---	---	---	---	---	---	---	---	---	---	
3. Ammonia (mg/l)	.28	---	---	.35	.15	.03	.22	.00	.00	.04	.00	
4. Aromatics, Polycyclic												
5. Arsenic (ug/l)	6	---	---	7	2	5	9	4	3	5	6	
6. Barium (ug/l)	50	---	---	100	0	0	100	100	0	100	0	
7. Beryllium (ug/l)	<2	---	---	---	---	---	---	---	---	---	---	
8. Bicarbonate (mg/l)	508	---	---	901	735	513	815	461	489	474	464	
9. Bismuth (ug/l)	<5	---	---	---	---	---	---	---	---	---	---	
10. Boron (ug/l)	100	---	---	320	550	160	670	150	160	140	[illegible]	
11. Cadmium (ug/l)	<60	---	---	0	1	1	0	0	0	0	3	
12. Carbonate (mg/l)	0	---	---	0	0	0	0	0	0	0	0	
13. Carbon Dioxide (mg/l)	13	---	---	7.2	7.4	65	13	7.4	4.9	4.8	[illegible]	
14. Chloride (mg/l)	8.9	---	---	11	16	11	15	8.8	9.7	11	10	
15. Chromium (ug/l)	<5	---	---	0	0	0	0	0	0	0	0	
16. Cobalt (ug/l)	<5	---	---	---	---	---	---	---	---	---	---	
17. COD	94	---	---	---	---	---	---					
18. Coliform, Total & Fecal												
19. Color (PVC)	8	---	---	5	0	5	6	17	10	6	6	
20. Conductivity, Specific	1200	---	---	1725	1550	1300	1550	1100	1200	1000	1150	
21. Copper (ug/l)	2	---	---	3	6	1	1	0	1	0	4	
22. Cyanide (mg/l)	.00	---	---	.00	.01	.01	.02	.02	.01	.00	.00	
23. Discharge (CFS)												
24. Discharge, Instantaneous	.34	---	---	1.1	1.3	.46	3.1	---	1.5	1.1	1.0	
25. Dissolved Oxygen (mg/l)	9.0	---	5.4	5.4	7.3	8.0	8.1	5.0	4.8	6.7	[illegible]	
26. Fluoride (mg/l)	.4	---	---	10	4.3	.4	2.8	.5	.5	.5	.6	
27. Gallium (ug/l)	<2	---	---	---	---	---	---	---	---	---	---	
28. Germanium (ug/l)	<6	---	---	---	---	---	---	---	---	---	---	
29. Hardness (Ca, Mg) (mg/l)	520	---	---	360	380	480	390	420	410	430	[illegible]	
30. Hardness, Non-Carbonate (mg/l)	98	---	---	0	0	58	0	42	6	37	[illegible]	
31. Iron (ug/l)	120	---	---	30	10	30	30	70	0	20	10	
32. Kjeldahl Nitrogen (mg/l)	.67	---	---	2.4	1.1	.14	2.2	.67	.30	.52	.30	
33. Lead (ug/l)	<6	---	---	2	8	1	1	0	1	0	3	
34. Lithium (ug/l)	14	---	---	30	20	10	20	10	10	0	[illegible]	
35. Magnesium (mg/l)	70	---	---	52	59	63	53	56	54	55	64	
36. Manganese (ug/l)	43	---	---	0	70	20	6	0	5	0	[illegible]	
37. Mercury (ug/l)	.0	---	---	.3	0	0	0	.0	.0	.0	[illegible]	
38. Molybdenum (ug/l)	30	---	---	---	---	---	---	---	---	---	---	
39. Nickel (ug/l)	<4	---	---	---	---	---	---	---	---	---	---	
40. Nitrate (mg/l)	1.2	---	---	1.2	1.5	1.4	3.0	3.0	2.5	1.6	1.5	
41. Nitrite (mg/l)	.07	---	---	.00	.10	.00	.03	0.3	.03	.03	.03	
42. Nitrite Plus Nitrate (mg/l)	.28	---	---	.28	.36	.32	.68	.69	.57	.37	.34	
43. Nitrogen, Ammonia	.22	---	---	.27	.12	.02	.17	.00	.00	.03	.00	
44. Odor (Severity)	3	2	2	---	0	0	1	0	0	0	[illegible]	
45. Oil & Grease (mg/l)	4	---	---	2	3	0	2	2	3	2	1	
46. Ortho-Phosphate (mg/l)	.28	---	---	.06	.12	.15	.12	.00	.06	.15	.03	
47. Ortho-Phosphorus (mg/l)	.09	---	---	.02	.04	.05	.04	.00	.02	.05	.01	
48. Pesticides												
49. pH	7.8	---	---	8.3	8.2	7.1	8.0	8.0	8.2	8.2	[illegible]	
50. Phosphorus, Total (mg/l)	.37	---	---	.60	.58	.05	.41	.54	.07	.04	.04	
51. Potassium (mg/l)	1.4	---	---	2.3	2.0	1.8	2.2	1.4	1.4	1.4	1.6	
52. Selenium (ug/l)	2	---	---	2	1	2	2	3	4	3	3	
53. Silica (mg/l)	13	---	---	19	19	21	20	23	21	21	[illegible]	
54. Silver (ug/l)	0	---	---	---	---	---	---	---	---	---	---	
55. Sodium (mg/l)	110	---	---	300	240	120	250	94	110	[illegible]	[illegible]	
56. Sodium Adsorption Ratio	2.1	---	---	6.8	5.4	2.4	5.5	[illegible]	2.4	2.2	2.2	
57. Sodium ( )	32	---	---	64	58	35	58	33	37	36	[illegible]	
58. Solids, Dissolved (mg/l)	838	---	---	1140	1040	850	1020	691	724	775	[illegible]	
59. Solids, Dissolved T/D	.77	---	---	3.57	3.73	1.06	3.54	---	[illegible]	2.34	[illegible]	
60. Solids, Dissolved T/Ac-Ft	1.14	---	---	1.55	1.41	1.16	1.39	.94	.98	1.05	[illegible]	
61. Solids, Suspended												
62. Strontium (ug/l)	1600	---	---	---	---	---	---	---	---	---	---	
63. Sulfate (mg/l)	290	---	---	240	280	290	200	200	210	260	[illegible]	
64. Sulfide (mg/l)	.0	---	---	.3	.0	.2	.2	.2	[illegible]	.0	[illegible]	
65. Temperature (°C)	8.0	---	---	7.0	13.0	14.0	11.0	[illegible]	15.0	15.0	[illegible]	
66. Tin (ug/l)	<5	---	---	---	---	---	---	---	---	---	---	
67. Titanium (ug/l)	<4	---	---	---	---	---	---					
68. Turbidity (JTU)	1000	---	---	740	50	1	120	150	50	13	4	
69. Vanadium (ug/l)	3.0	---	---	---	---	---	---	---	---	---	---	
70. Zinc (ug/l)	0	---	---	40	10	6	10	10	4	0	[illegible]	
71. Zirconium (ug/l)	<9	---	---	---	---	---	---					
72. Calcium (mg/l)	90	---	---	60	55	88	68					
73. Complete Element Span												
74. Radioactivity												
Gross Alpha (pci)	<10	---	---	---	---	---	---					
Radium 226*												
Gross Beta	<2.4	---	---	---	---	---	---					
Thorium 230**												
Uranium**												
75. Total Organic Carbon (mg/l)	9.8	---	---	---	---	---	---					
If TOC 10 mg/liter, then												
Nitrogen (Base Extraction)												
Organic Carbon, Dissolved												
Organic Carbon, Suspended												
Phenols												
Sulfur (Acid Extraction)												
76. Total Ortho-Phosphorus	.11	---	---	.58	.05	.06	.04	[illegible]				
77. Phosphate	---	---	---	---	1.8	.15	1.3	[illegible]				

TABLE 1.2-5

SUMMARY WATER ANALYSIS

STREAM GAGING STATION, USGS 09306255

YELLOW CREEK NEAR WHITE RIVER

Date Time	3/12/75 1400	3/26/75 1030	4/9/75 1200	4/9/75 1300	4/23/75 1000	5/15/75 1100	5/28/75 1115	6/13/75 1115	6/26/75 1330	7/16/75 1045	7/28/75 0920	8/14/75 0915
1. Alkalinity (mg/l)	1330	1330	1380	1580	1220	1380	1270	1460	1500	1280	1580	1510
2. Aluminum (ug/l)	150	---	---	---	---	---						
3. Ammonia (mg/l)	.00	.22	.24	.30	.00	.08	.00	.01	.03	.00	.05	.00
4. Aromatics, Polycyclic												
5. Arsenic (ug/l)	5	3	1	5	6	5	5	5	9	6	4	6
6. Barium (ug/l)	200	100	100	300	0	300	200	300	200	400	0	400
7. Beryllium (ug/l)	<4	---	---	---	---	---						
8. Bicarbonate (mg/l)	1620	1210	1480	930	1490	1510	1150	1490	1550	1340	596	1220
9. Bismuth (ug/l)	<15	---	---	---	---	---						
10. Boron (ug/l)	560	630	680	700	630	640	640	730	740	670	690	720
11. Cadmium (ug/l)	<170	0	0	0	1	2	1	0	0	1	1	0
12. Carbonate (mg/l)	0	203	97	0	1	87	194	140	139	107	657	308
13. Carbon Dioxide (mg/l)	10	5.2	4.3	6.2	3.8	5.4	---	1.1	2.3	7.9	3.9	12
14. Chloride (mg/l)	130	110	130	130	120	120	100	130	130	110	140	140
15. Chromium (ug/l)	<15	0	0	0	0	0	0	0	0	0	0	0
16. Cobalt (ug/l)	<15	---	---	---	---	---						
17. COD	7	---	---	---	---	---						
18. Coliform, Total & Fecal												
19. Color (PVC)	3	10	3	2	[illegible]	3	20	20	20	45	20	20
20. Conductivity, Specific	3500	3600	3250	3400	3500	3000	3020	4000	4200	3800	3500	4000
21. Copper (ug/l)	5	0	3	1	7	3	2	1	3	4	4	2
22. Cyanide (mg/l)	.00	.00	---	.00	.00	.00	.00	.00	.00	.00	.00	.00
23. Discharge (CFS)	---	---	---	---	---	---						
24. Discharge, Instantaneous	2.9	2.2	1.2	3.3	1.9	1.7	---	---	1.1	1.9	1.1	---
25. Dissolved Oxygen (mg/l)	8.5	10.6	10.4	9.1	9.6	7.6	9.7	8.6	8.4	7.4	11.0	9.1
26. Fluoride (mg/l)	2.0	1.9	1.2	1.6	2.1	2.1	2.0	2.4	2.4	1.8	2.5	[illegible]
27. Gallium (ug/l)	<5	---	---	---	---	---						
28. Germanium (ug/l)	<20	---	---	---	---	---						
29. Hardness (Ca, Mg) (mg/l)	550	650	500	590	550	570	500	550	500	500	490	510
30. Hardness, Non-Carbonate (mg/l)	0	0	0	0	0	0	0	0	0	0	0	0
31. Iron (ug/l)	65	20	10	10	30	40	660	20	10	20	[illegible]	10
32. Kjeldahl Nitrogen (mg/l)	.17	.71	---	2.6	.60	.30	1.4	.98	.45	.86	[illegible]	[illegible]
33. Lead (ug/l)	<16	0	0	0	9	4	5	1	1	0	2	1
34. Lithium (ug/l)	160	120	120	140	130	170	120	130	160	130	[illegible]	160
35. Magnesium (mg/l)	110	130	98	120	130	120	100	120	110	96	110	110
36. Manganese (ug/l)	14	20	10	10	30	10	50	0	0	0	20	10
37. Mercury (ug/l)	.0	.0	.3	.0	.0	.2	.0	.0	.0	.0	[illegible]	.0
38. Molybdenum (ug/l)	30	---	---	---	--	---						
39. Nickel (ug/l)	<10	---	---	---	-	---						
40. Nitrate (mg/l)	9.3	6.6	9.7	7.9	4.4	2.5	1.5	.04	.49	2.2	[illegible]	1.2
41. Nitrite (mg/l)	.00	.03	.03	.03	.03	.03	.03	.00	[illegible]	[illegible]	[illegible]	[illegible]
42. Nitrite Plus Nitrate (mg/l)	2.1	1.5	2.2	1.8	1.0	.58	.35	.01	.13	.51	1.7	.34
43. Nitrogen, Ammonia	.00	.17	.19	.23	.00	.06	.00	.01	.02	.00	.04	[illegible]
44. Odor (Severity)	2	2	---	---	0	0	0	0	0	0		
45. Oil & Grease (mg/l)	3	3	---	2	2	1	1	0	---	1	[illegible]	[illegible]
46. Ortho-Phosphate (mg/l)	.15	.37	.34	.15	[illegible]	.06	.06	.00	.03	.00	[illegible]	[illegible]
47. Ortho-Phosphorus (mg/l)	.05	.12	.11	.05	.04	.02	.02	.00	.01	.00	[illegible]	.00
48. Pesticides												
49. pH	8.4	8.7	8.8	8.7	8.8	8.7	---	9.4	9.1	[illegible]	[illegible]	[illegible]
50. Phosphorus, Total (mg/l)	.02	.13	---	.79	.09	.04	.10	.01	.01	[illegible]	.03	.05
51. Potassium (mg/l)	4.6	3.5	3.8	4.4	7.4	3.9	4.5	3.5	3.6	5.5	[illegible]	[illegible]
52. Selenium (ug/l)	3	2	3	3	1	1	3	2	2	2		[illegible]
53. Silica (mg/l)	20	14	14	14	[illegible]	7.1	5.7	1.9	3.7	14	[illegible]	[illegible]
54. Silver (ug/l)	<2	---	---	---	---	---						
55. Sodium (mg/l)	710	700	680	840	710	740	680	730	[illegible]	[illegible]	[illegible]	[illegible]
56. Sodium Adsorption Ratio	13	12	13	15	13	13	13	15	15	14	16	15
57. Sodium	74	70	75	75	73	74	74	76	77	[illegible]	[illegible]	77
58. Solids, Dissolved (mg/l)	2320	2450	2270	2740	2330	2430	2250	2540	2530	[illegible]	[illegible]	[illegible]
59. Solids, Dissolved T/D	18.6	14.6	7.66	25.0	12.0	11.2	---	---	7.51	[illegible]	[illegible]	[illegible]
60. Solids, Dissolved T/Ac-Ft	3.16	3.33	3.09	3.73	3.17	3.30	3.06	3.45	[illegible]	[illegible]	[illegible]	[illegible]
61. Solids, Suspended												
62. Strontium (ug/l)	3500	---	---	---								
63. Sulfate (mg/l)	490	640	470	630	[illegible]	570	560	[illegible]	500	540	[illegible]	[illegible]
64. Sulfide (mg/l)	.0	.1	.3	.2	.1	.1	.0	.3	.3	.1	[illegible]	[illegible]
65. Temperature (°C)	9.0	3.5	6.0	9.0	[illegible]	17.0	9.5	21.5	24.0	[illegible]	[illegible]	[illegible]
66. Tin (ug/l)	<15	---	---	---	---	---						
67. Titanium (ug/l)	<10	---	---	---	---	---						
68. Turbidity (JTU)	3	85	3	400	56	18	230	[illegible]	4	150	[illegible]	[illegible]
69. Vanadium (ug/l)	<8.0	---	- -	---	---	--						
70. Zinc (ug/l)	6	0	6	20	0	6	30	[illegible]	10	20	[illegible]	10
71. Zirconium (ug/l)	<25	---	---	---	--	---						
72. Calcium (mg/l)	37	45	37	40	[illegible]	31						
73. Complete Element Span												
74. Radioactivity												
Gross Alpha (pci)	<36	---	---	---								
Radium 226*												
Gross Beta	8.8	---	---	---								
Thorium 230**												
Uranium**												
75. Total Organic Carbon (mg/l)	4.7	---	---	---								
If TOC 10 mg/liter, then												
Nitrogen (Base Extraction)												
Organic Carbon, Dissolved												
Organic Carbon, Suspended												
Phenols												
Sulfur (Acid Extraction)												
76. Total Ortho-Phosphorus (mg/l)	.06	.12	.30	.42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
77. Phosphate	--	---	--	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15
78. Phosphorus, Dissolved	-	---	--	---	-			---		--		

TABLE 1.2-6

SUMMARY WATER ANALYSIS

STREAM GAGING STATION, USGS 09306240

BOX ELDER GULCH WEST OF TRACT

	5/14/75	5/28/75	6/16/75	6/25/75								
1. Alkalinity (mg/l)	257	290	267	274								
2. Aluminum (ug/l)												
3. Ammonia (mg/l)	.01	.00	.00	.00								
4. Aromatics, Polycyclic												
5. Arsenic (ug/l)	8	5	5	3								
6. Barium (ug/l)	100	0	100	0								
7. Beryllium (ug/l)												
8. Bicarbonate (mg/l)	313	354	326	334								
9. Bismuth (ug/l)												
10. Boron (ug/l)	100	110	80	70								
11. Cadmium (ug/l)	0	0	0	0								
12. Carbonate (mg/l)	0	0	0	0								
13. Carbon Dioxide (mg/l)	1.6	---	.5	.8								
14. Chloride (mg/l)	6.0	5.2	5.2	6.0								
15. Chromium (ug/l)	20	0	0	0								
16 Cobalt (ug/l)												
17. COD												
18 Coliform, Total & Fecal												
19. Color (PVC)	9	2	17	9								
20. Conductivity, Specific	845	880	800	800								
21. Copper (ug/l)	3	6	2	1								
22. Cyanide (mg/l)	.01	.00	.00	.01								
23. Discharge (CFS)												
24 Discharge, Instantaneous	.55	---	---	.49								
25. Dissolved Oxygen (mg/l)	5.5	8.8	8.3	8.0								
26. Fluoride (mg/l)	.3	.4	.3	.3								
27 Gallium (ug/l)												
28 Germanium (ug/l)												
29. Hardness (Ca, Mg) (mg/l)	340	380	350	340								
30. Hardness, Non-Carbonate (mg/l)	79	86	81	67								
31. Iron (ug/l)	20	40	10	0								
32. Kjeldahl Nitrogen (mg/l)	.37	2.7	.66	.31								
33. Lead (ug/l)	2	3	1	1								
34. Lithium (ug/l)	20	10	20	20								
35 Magnesium (mg/l)	49	46	47	44								
36. Manganese (ug/l)	5	20	0	5								
37 Mercury (ug/l)	.0	.0	.0	.0								
Molybdenum (ug/l)												
39 Nickel (ug/l)												
40. Nitrate (mg/l)	4.1	4.4	4.1	3.9								
41. Nitrite (mg/l)	.00	.00	.03	.03								
42. Nitrite Plus Nitrate (mg/l)	.92	1.0	.93	.89								
43 Nitrogen, Ammonia	.01	.00	.00	.00								
44 Odor (Severity)	0	0	0	0								
45 Oil & Grease (mg/l)	2	1	[illegible]	3								
46 Ortho-Phosphate (mg/l)	.06	.09	.03	.03								
47 Ortho-Phosphorus (mg/l)	.02	03	.01	.01								
48. Pesticides												
49 pH	8.5	---	9.0	8.8								
50 Phosphorus, Total (mg/l)	.12	.41	.03	.03								
51. Potassium (mg/l)	1.5	1.0	.7	.7								
Selenium (ug/l)	3	5	4	5								
53 Silica (mg/l)	23	21	22	23								
54 Silver (ug/l)												
55 Sodium (mg/l)	56	49	39	55								
56. Sodium Adsorption Ratio	1.3	1.1	.9	1.3								
57 Sodium ( )	27	22	20	26								
58. Solids, Dissolved (mg/l)	520	527	482	521								
59. Solids, Dissolved T/D	.77	---	---	.69								
60. Solids, Dissolved T/Ac-Ft	.71	.72	.66	.71								
61. Solids, Suspended												
62 Strontium (ug/l)												
63. Sulfate (mg/l)	170	150	140	160								
64 Sulfide (mg/l)	.0	.2	.2	.0								
65. Temperature (°C)	27.5	6.5	19.0	12.5								
66. Tin (ug/l)												
67 Titanium (ug/l)												
68. Turbidity (JTU)	50	210	32	13								
69 Vanadium (ug/l)												
70 Zinc (ug/l)	0	10	10	0								
71. Zirconium (ug/l)												
72 Calcium (mg/l)												
73. Complete Element Span												
74 Radioactivity												
Gross Alpha (pci)												
Radium 226*												
Gross Beta												
Thorium 230**												
Uranium**												
75. Total Organic Carbon (mg/l)												
If TOC 10 mg/liter, then												
Nitrogen (Base Extraction)												
Organic Carbon, Dissolved												
Organic Carbon, Suspended												
Phenols												
Sulfur (Acid Extraction)												
76. Total Ortho-Phosphorous (mg/l)	.03	.04	.01	01								
77 Phosphate	.37	1.3	[illegible]	[illegible]								

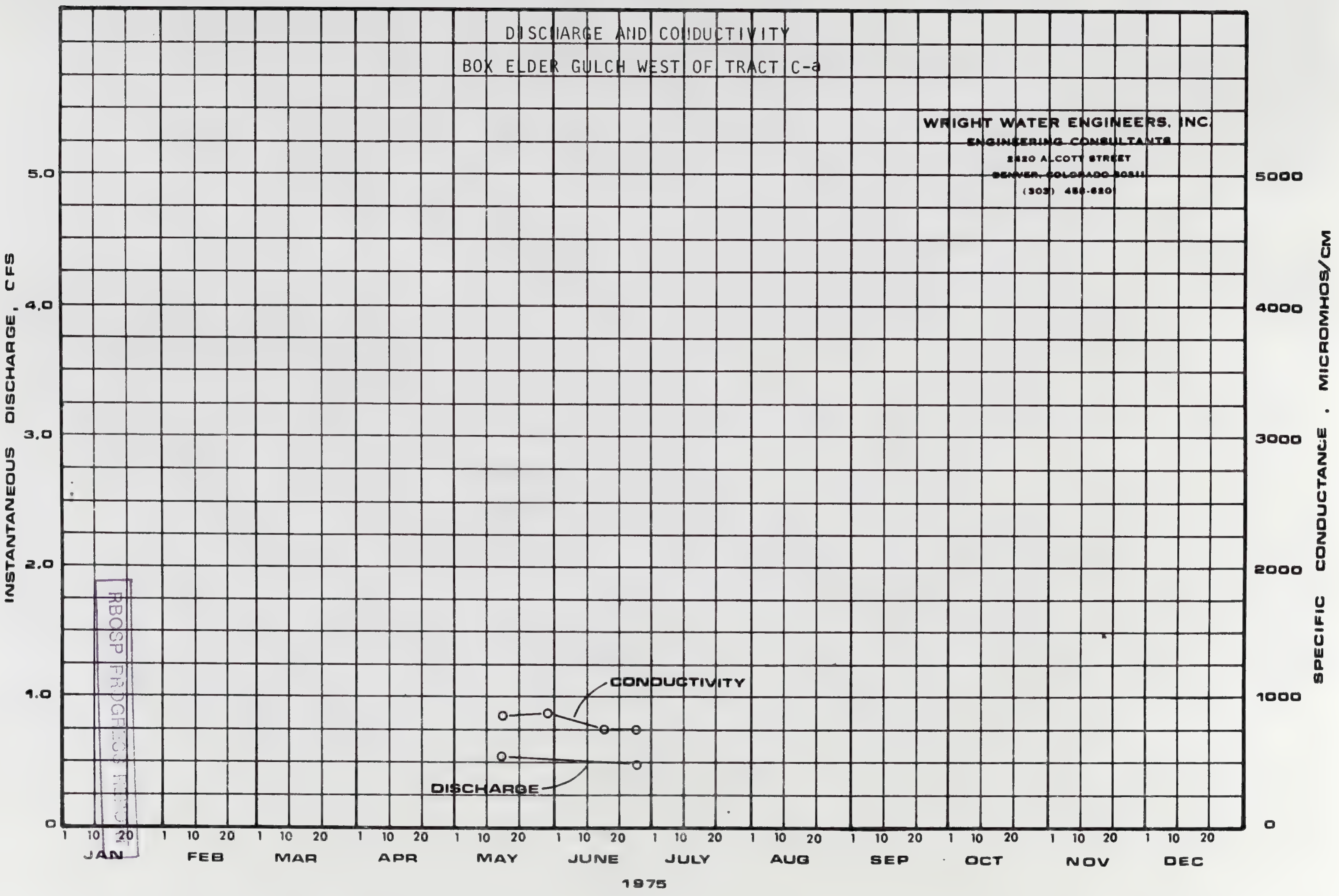

DISCHARGE AND CONDUCTIVITY
BOX ELDER GULCH WEST OF TRACT C-a
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201
INSTANTANEOUS DISCHARGE, CFS
0
1.0
2.0
3.0
4.0
5.0
SPECIFIC CONDUCTANCE, MICROMHOS/CM
0
1000
2000
3000
4000
5000
CONDUCTIVITY
DISCHARGE
1 10 20
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1975

FIGURE 1.2-2

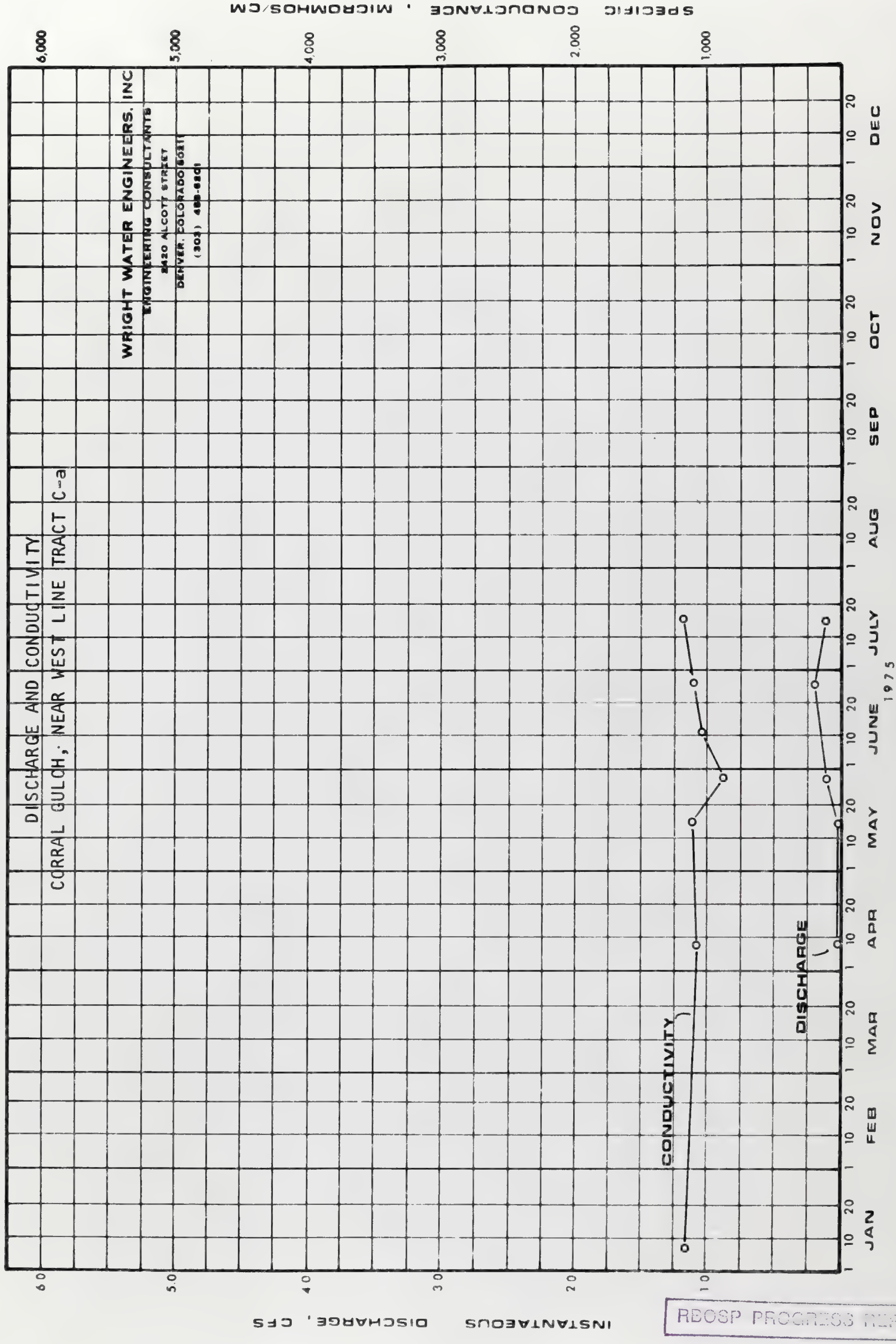

DISCHARGE AND CONDUCTIVITY
CORRAL GULCH, NEAR WEST LINE TRACT C-a
WRIGHT WATER ENGINEERS, INC
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 480-8201
SPECIFIC CONDUCTANCE, MICROMHOS/CM
1,000
2,000
3,000
4,000
5,000
6,000
INSTANTANEOUS DISCHARGE, CFS
1.0
2.0
3.0
4.0
5.0
6.0
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1975
CONDUCTIVITY
DISCHARGE

FIGURE 1.2-3

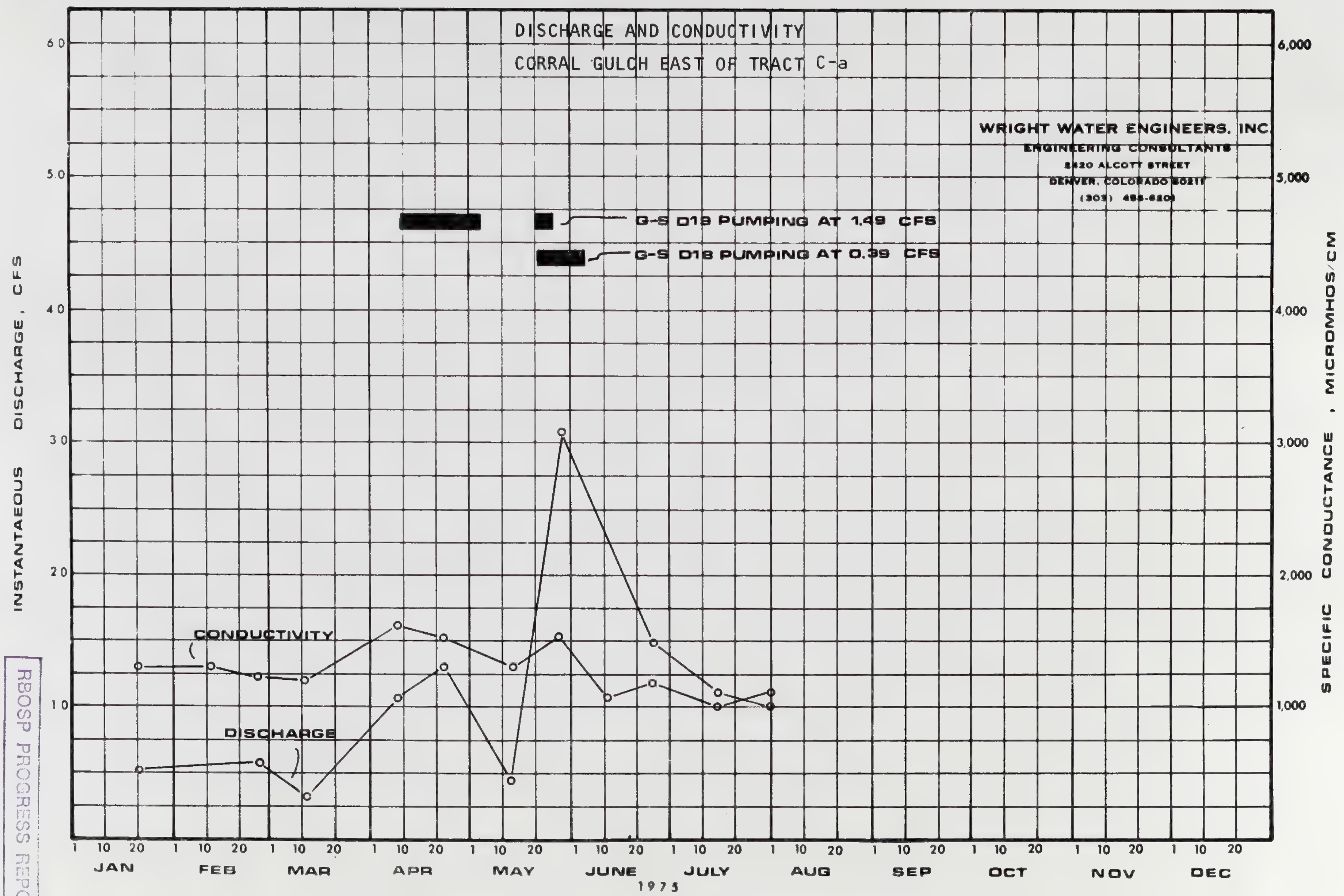

DISCHARGE AND CONDUCTIVITY
CORRAL GULCH EAST OF TRACT C-a
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201
G-S D18 PUMPING AT 1.49 CFS
G-S D18 PUMPING AT 0.39 CFS
CONDUCTIVITY
DISCHARGE
INSTANTAEOUS DISCHARGE, CFS
6.0
5.0
4.0
3.0
2.0
1.0
SPECIFIC CONDUCTANCE, MICROMHOS/CM
6,000
5,000
4,000
3,000
2,000
1,000
1 10 20
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1975

FIGURE 1.2-4

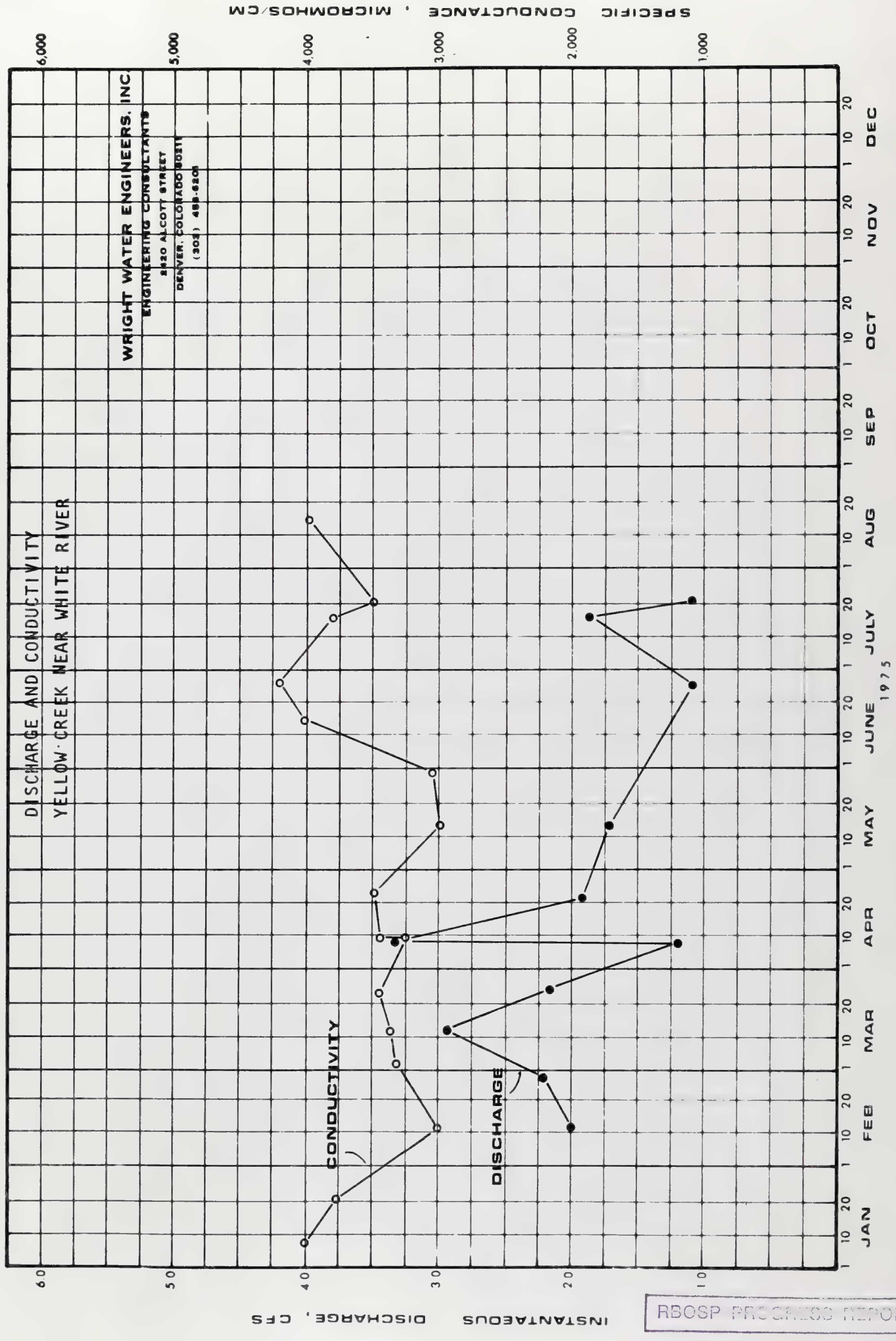

DISCHARGE AND CONDUCTIVITY
YELLOW CREEK NEAR WHITE RIVER
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 480-6201
CONDUCTIVITY
DISCHARGE
SPECIFIC CONDUCTANCE, MICROMHOS/CM
6,000
5,000
4,000
3,000
2,000
1,000
INSTANTANEOUS DISCHARGE, CFS
6.0
5.0
4.0
3.0
2.0
1.0
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1975

FIGURE 1.2-5

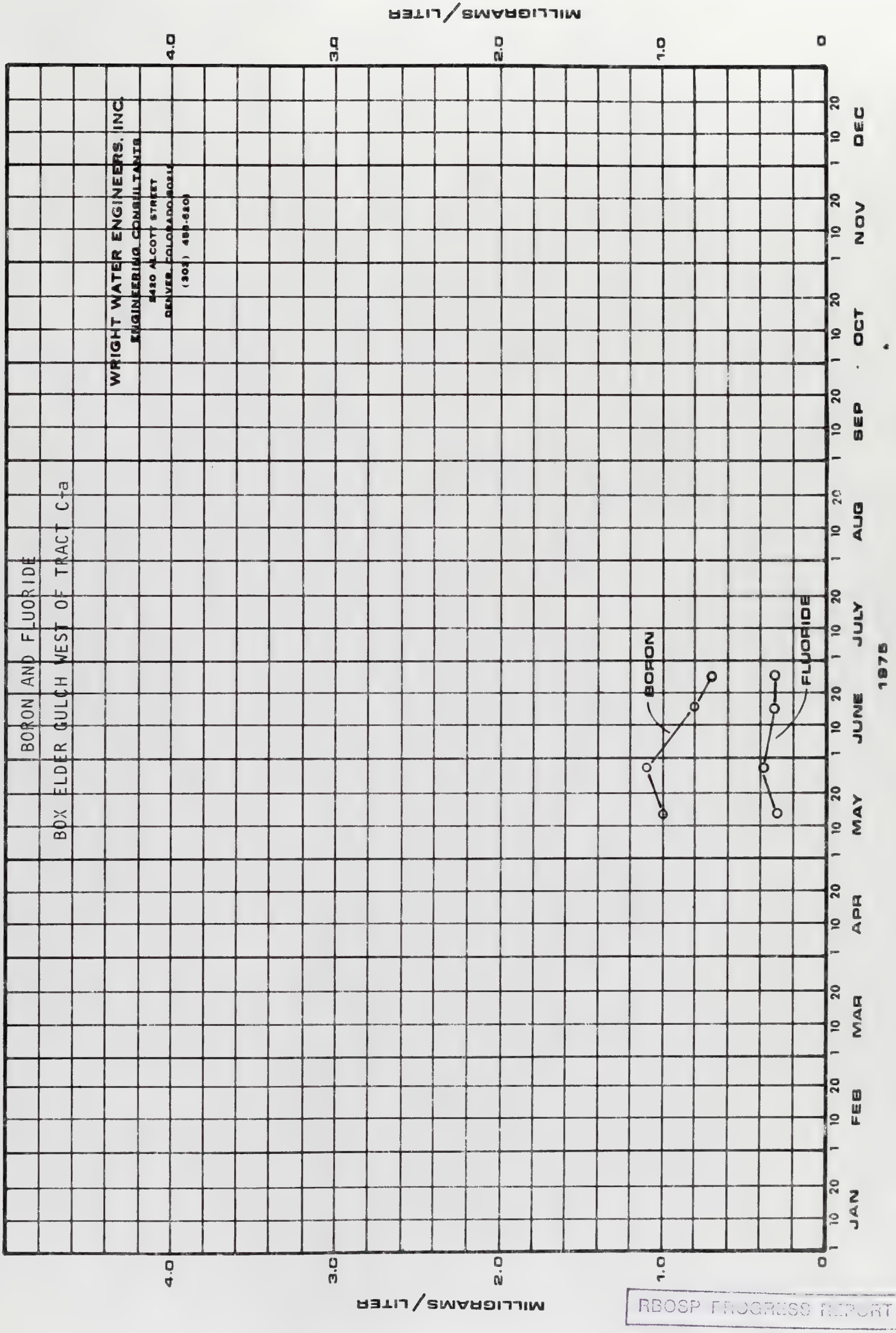

BORON AND FLUORIDE
BOX ELDER GULCH WEST OF TRACT C-a
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-620
MILLIGRAMS/LITER
0
1.0
2.0
3.0
4.0
BORON
FLUORIDE
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1975

FIGURE 1.2-6

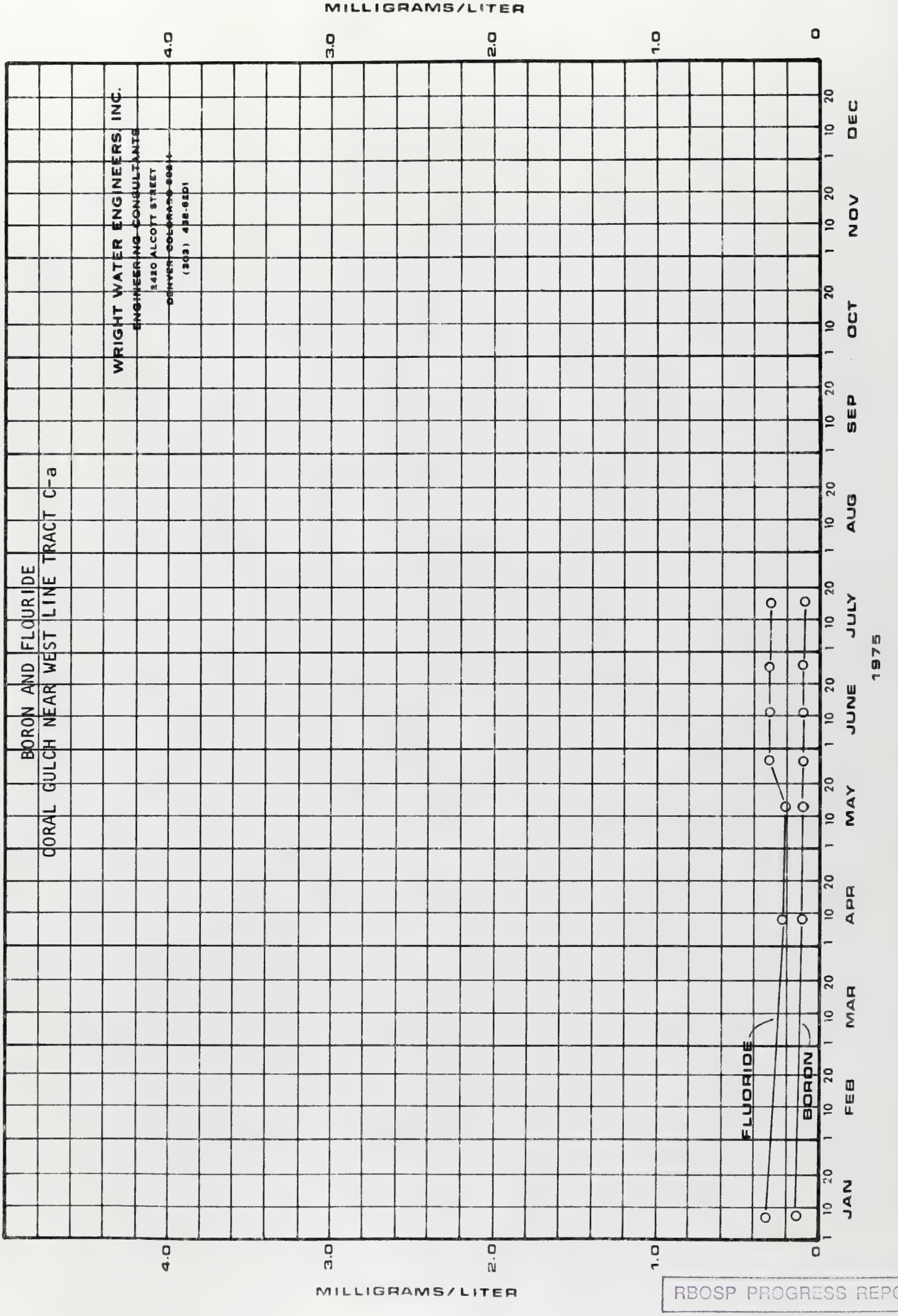
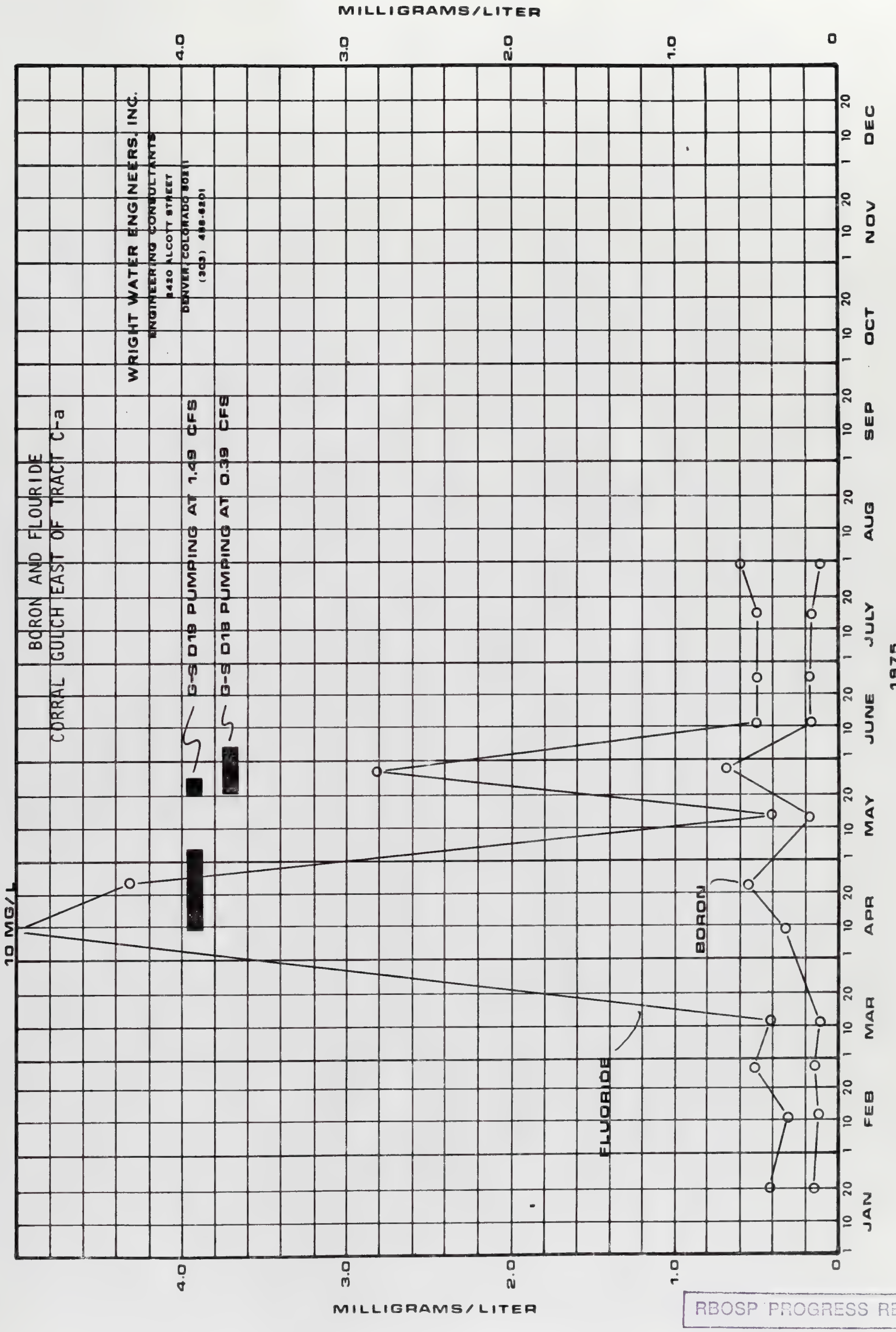

BORON AND FLOURIDE
CORAL GULCH NEAR WEST LINE TRACT C-a
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201
MILLIGRAMS/LITER
4.0
3.0
2.0
1.0
0
FLUORIDE
BORON
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1975

FIGURE 1.2-7



RBOSP PROGRESS REPORT

FIGURE 1.2-8

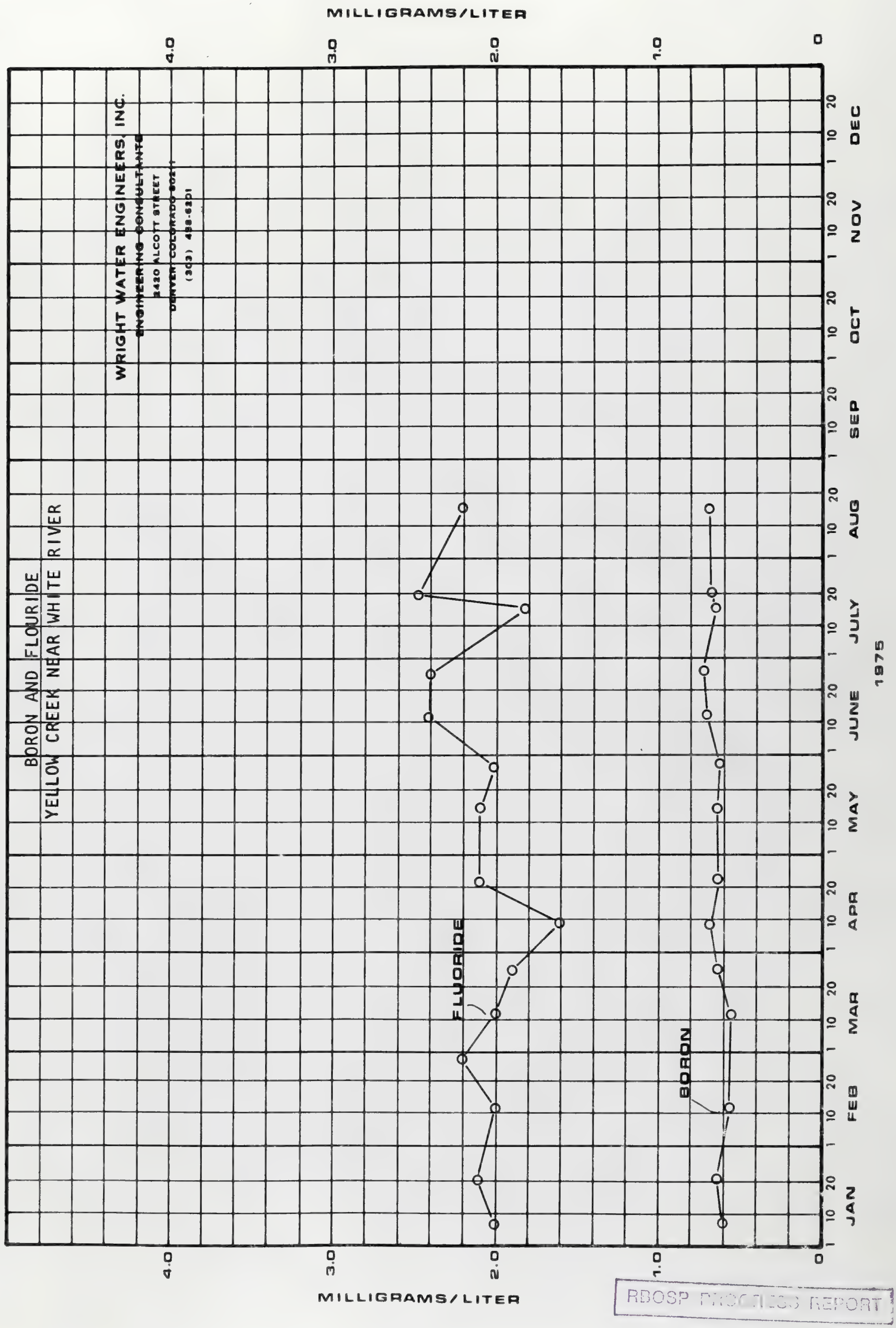
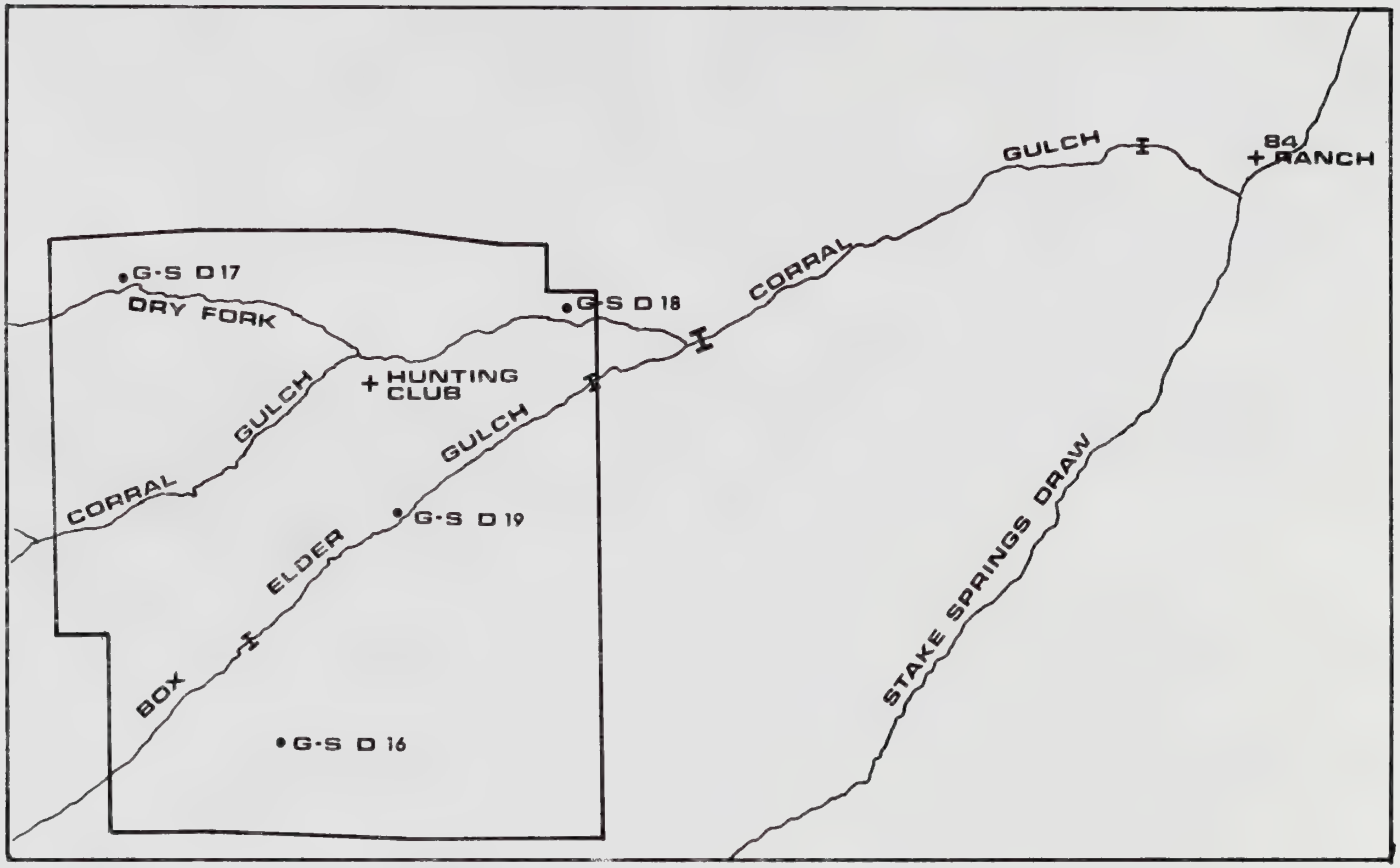

BORON AND FLOURIDE
YELLOW CREEK NEAR WHITE RIVER
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER COLORADO 80211
(303) 458-6201
MILLIGRAMS/LITER
4.0
3.0
2.0
1.0
0
FLUORIDE
BORON
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1975

FIGURE 1.2-9

FLUME LOCATION MAP


G·S D 17
DRY FORK
G·S D 18
CORRAL
GULCH
84
+ RANCH
+ HUNTING CLUB
GULCH
CORRAL
GULCH
G·S D 19
ELDER
BOX
G·S D 16
STAKE SPRINGS DRAW

LEGEND

I	Parshall Flume
I	USGS Gaging Station on Corral Gulch East of Tract C-a
—	Tract Boundary
•	Pumped Hole

Scale 1" = 1 mile

FIGURE 1.2-10

BOX ELDER AND CORRAL GULCH STREAM FLOW DURING PUMPING TESTS

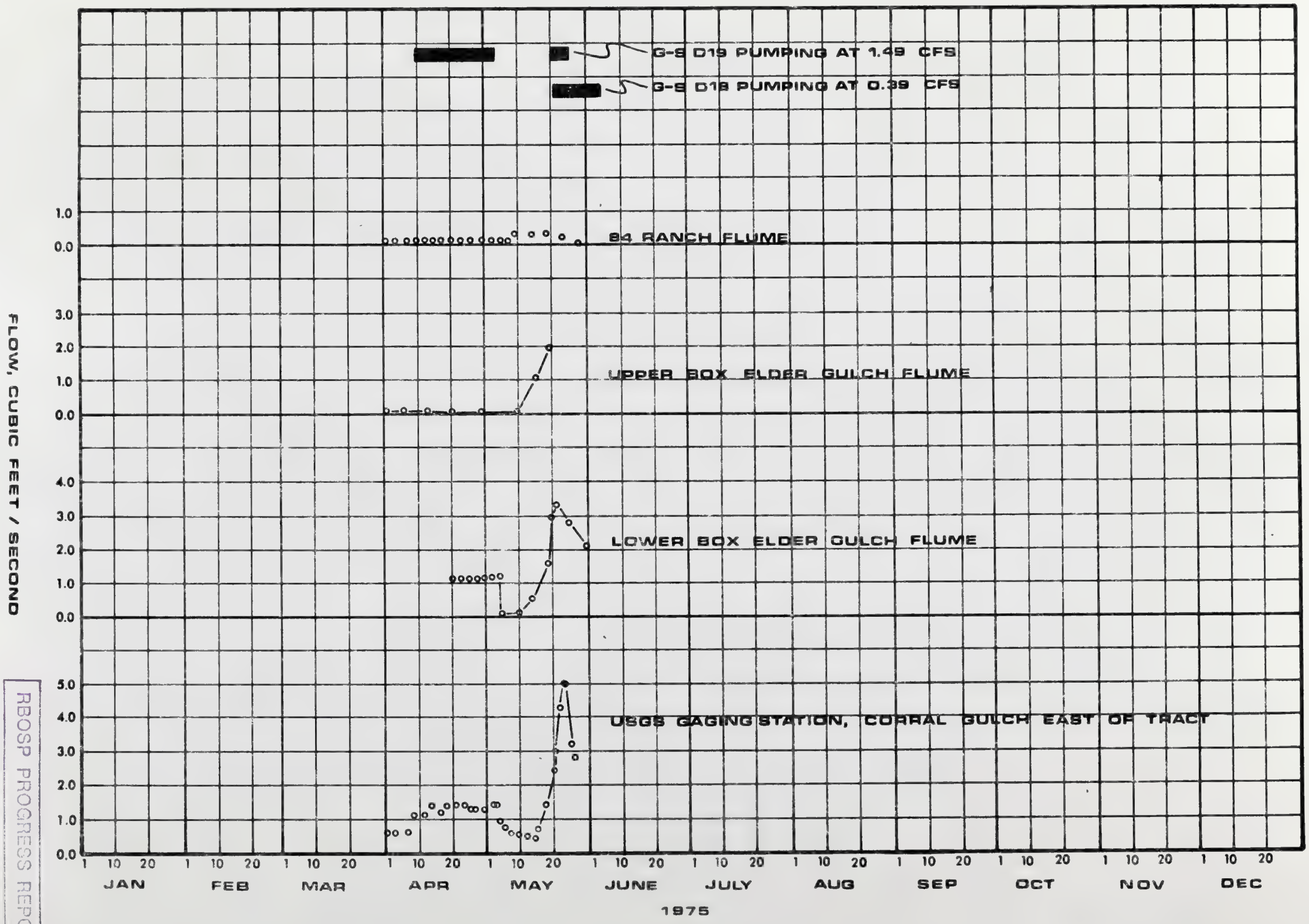


FIGURE 1.2-11

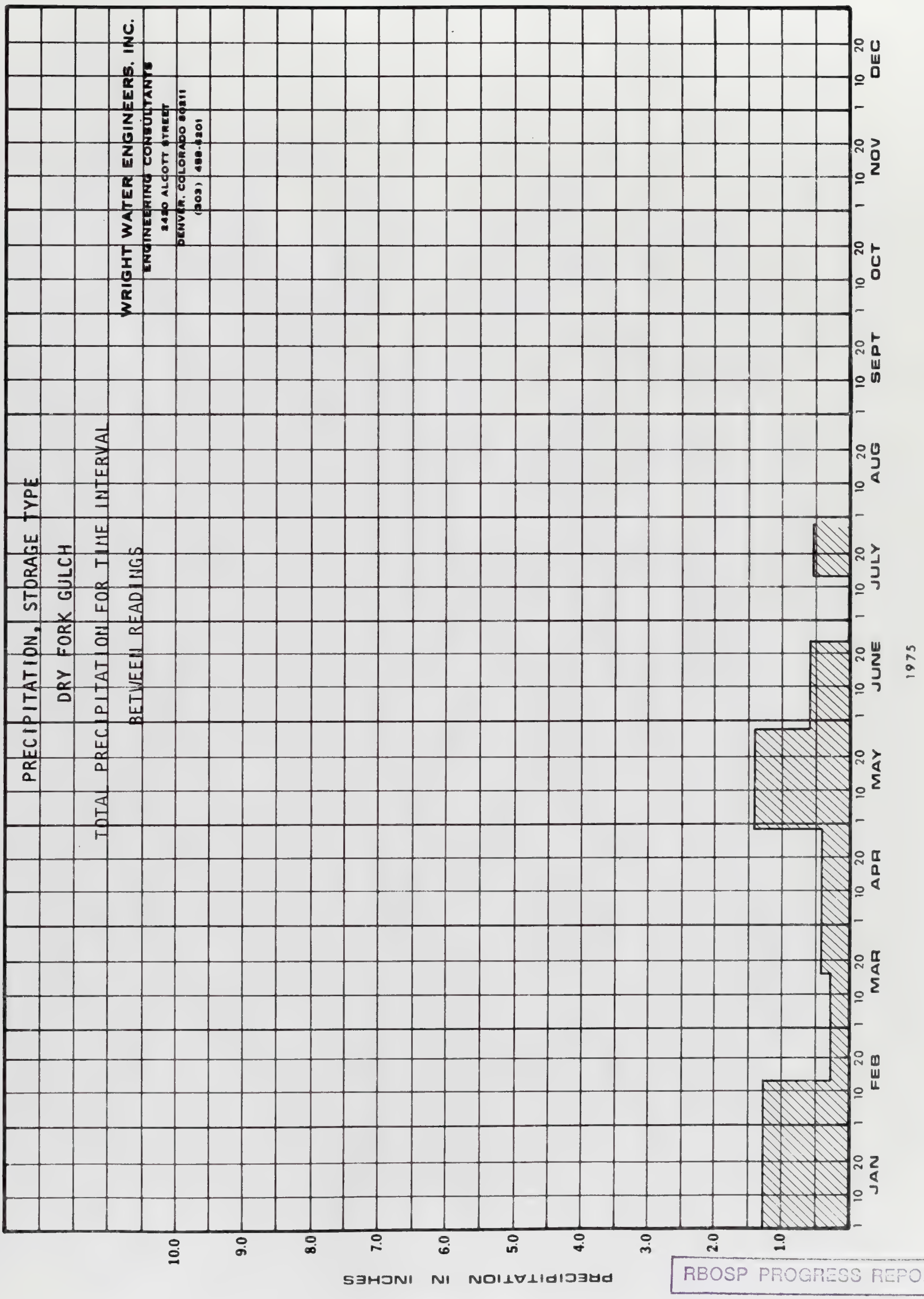

PRECIPITATION, STORAGE TYPE
DRY FORK GULCH
TOTAL PRECIPITATION FOR TIME INTERVAL
BETWEEN READINGS
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201
PRECIPITATION IN INCHES
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV
DEC
1
10
20
1975

FIGURE 1.2-12

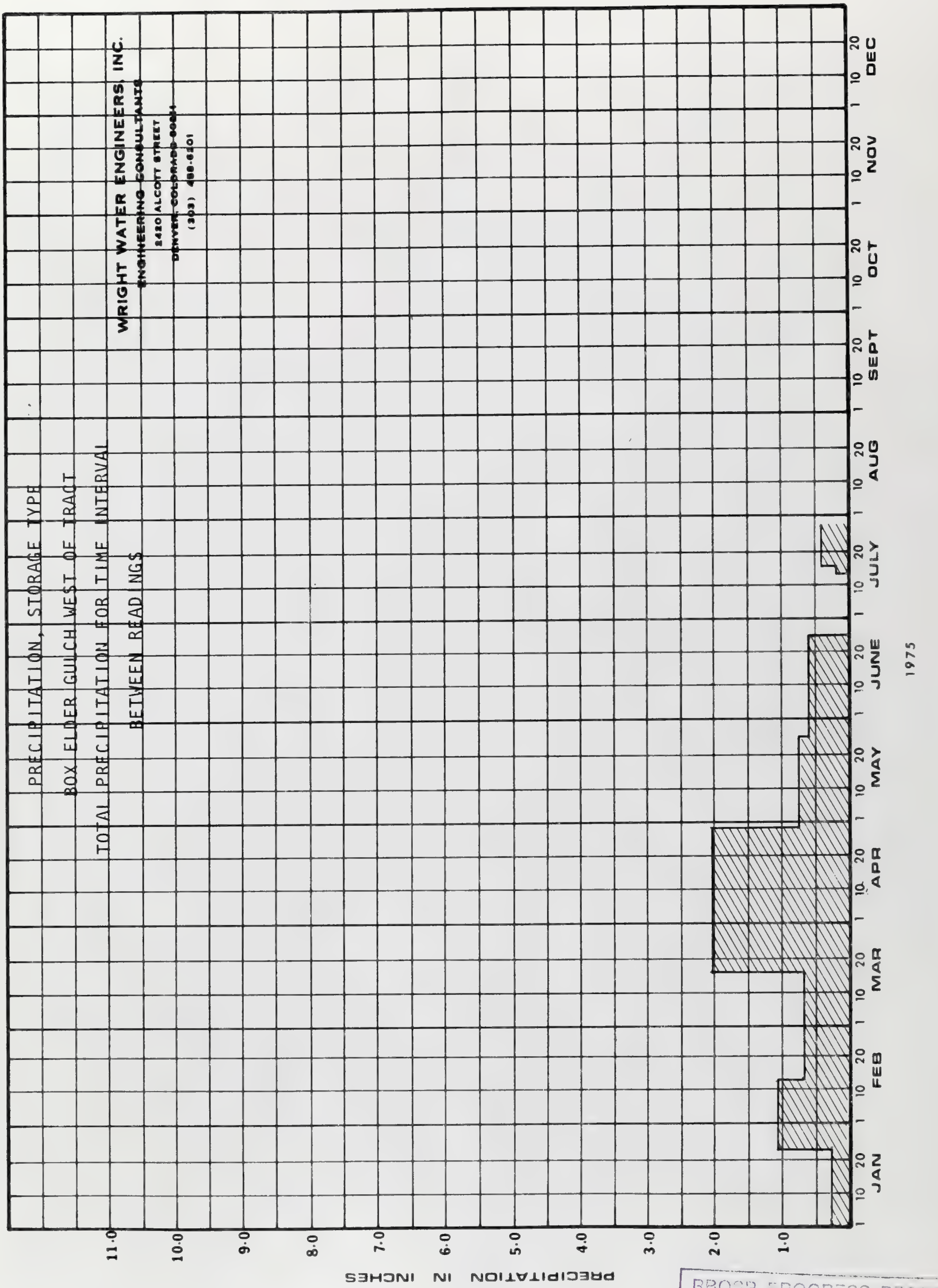

PRECIPITATION, STORAGE TYPE
BOX ELDER GULCH WEST OF TRACT
TOTAL PRECIPITATION FOR TIME INTERVAL
BETWEEN READINGS
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201
PRECIPITATION IN INCHES
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
1 10 20 JAN
1 10 20 FEB
1 10 20 MAR
1 10 20 APR
1 10 20 MAY
1 10 20 JUNE
1 10 20 JULY
1 10 20 AUG
1 10 20 SEPT
1 10 20 OCT
1 10 20 NOV
1 10 20 DEC
1975

FIGURE 1.2-13

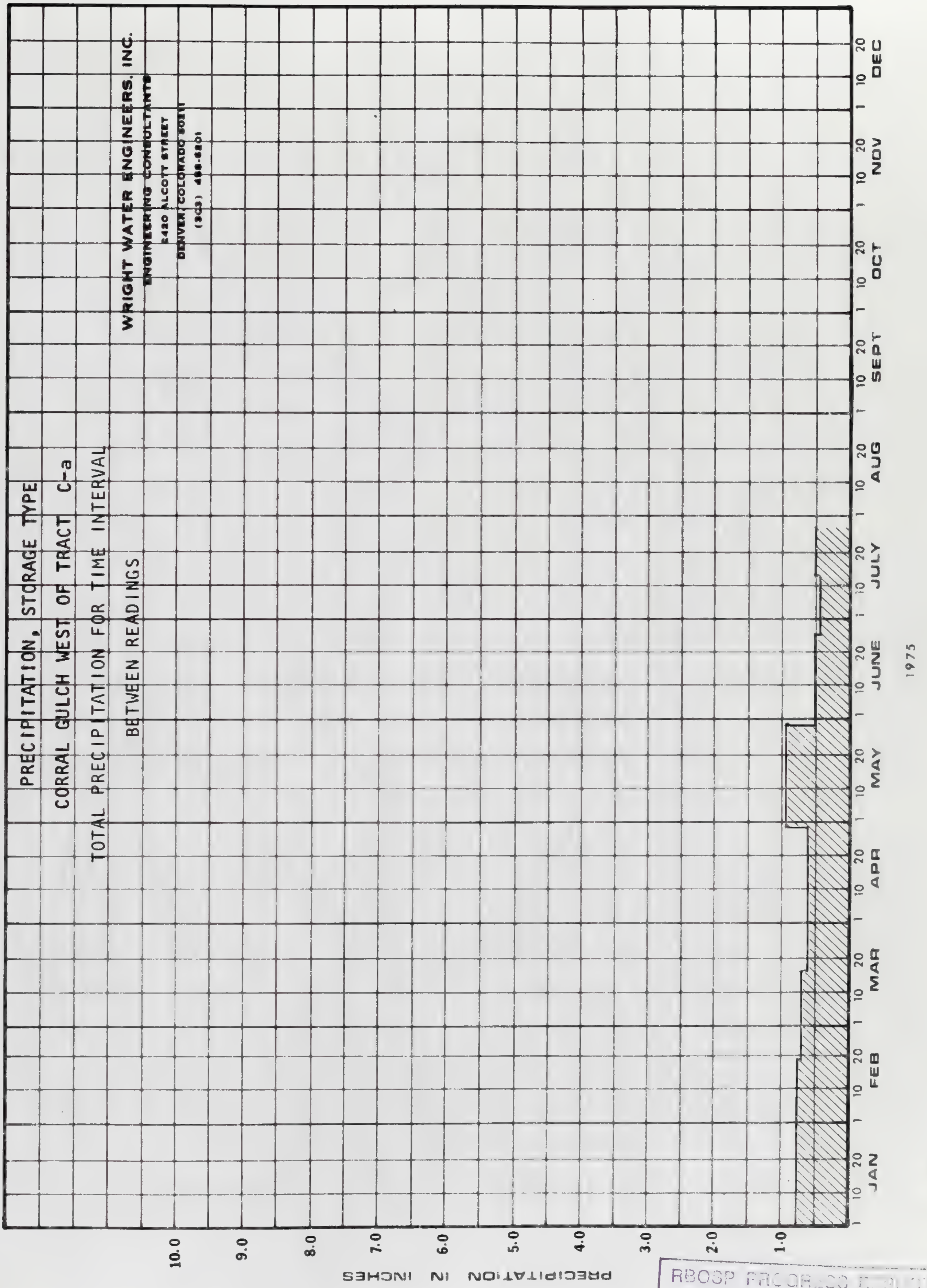
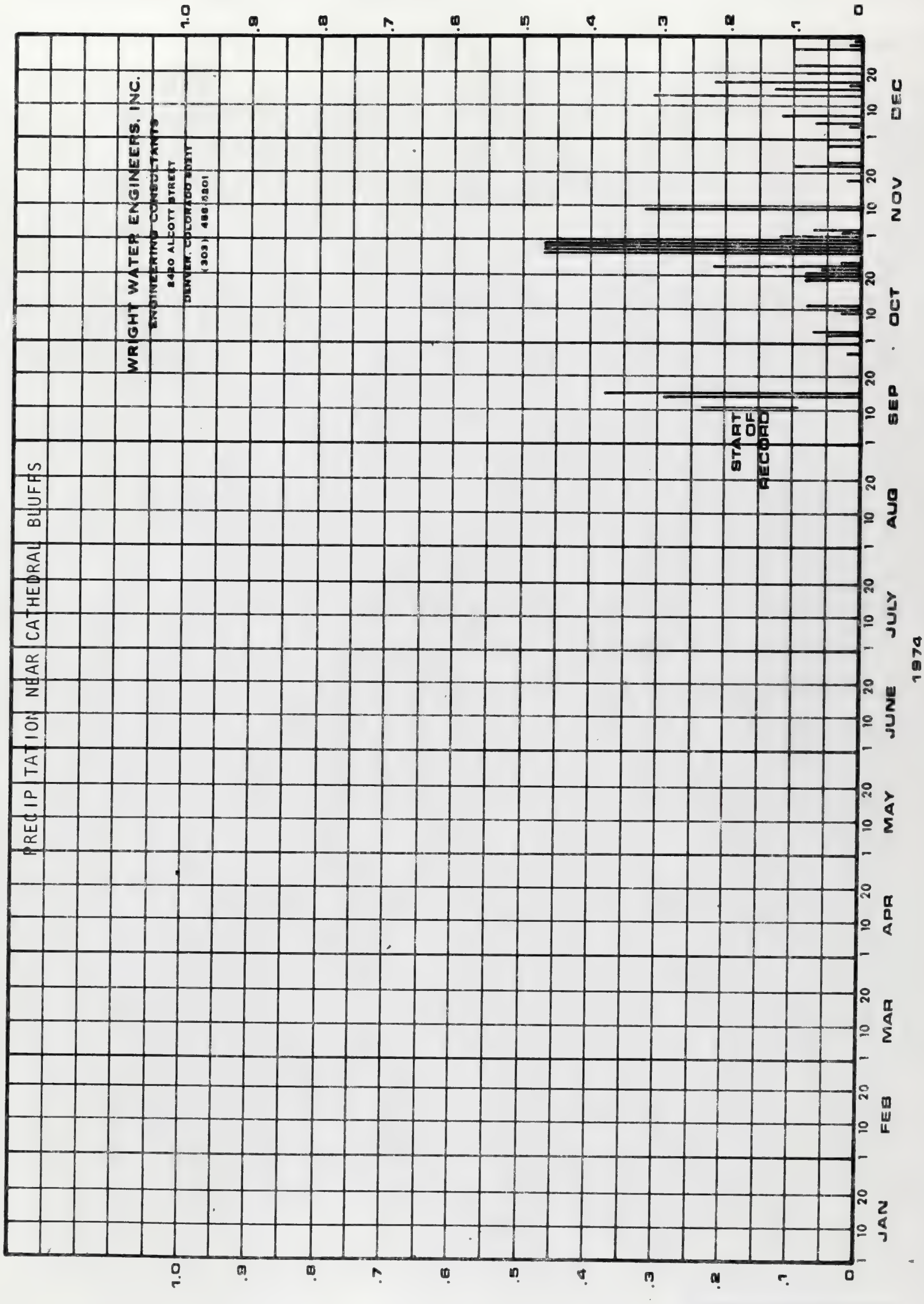
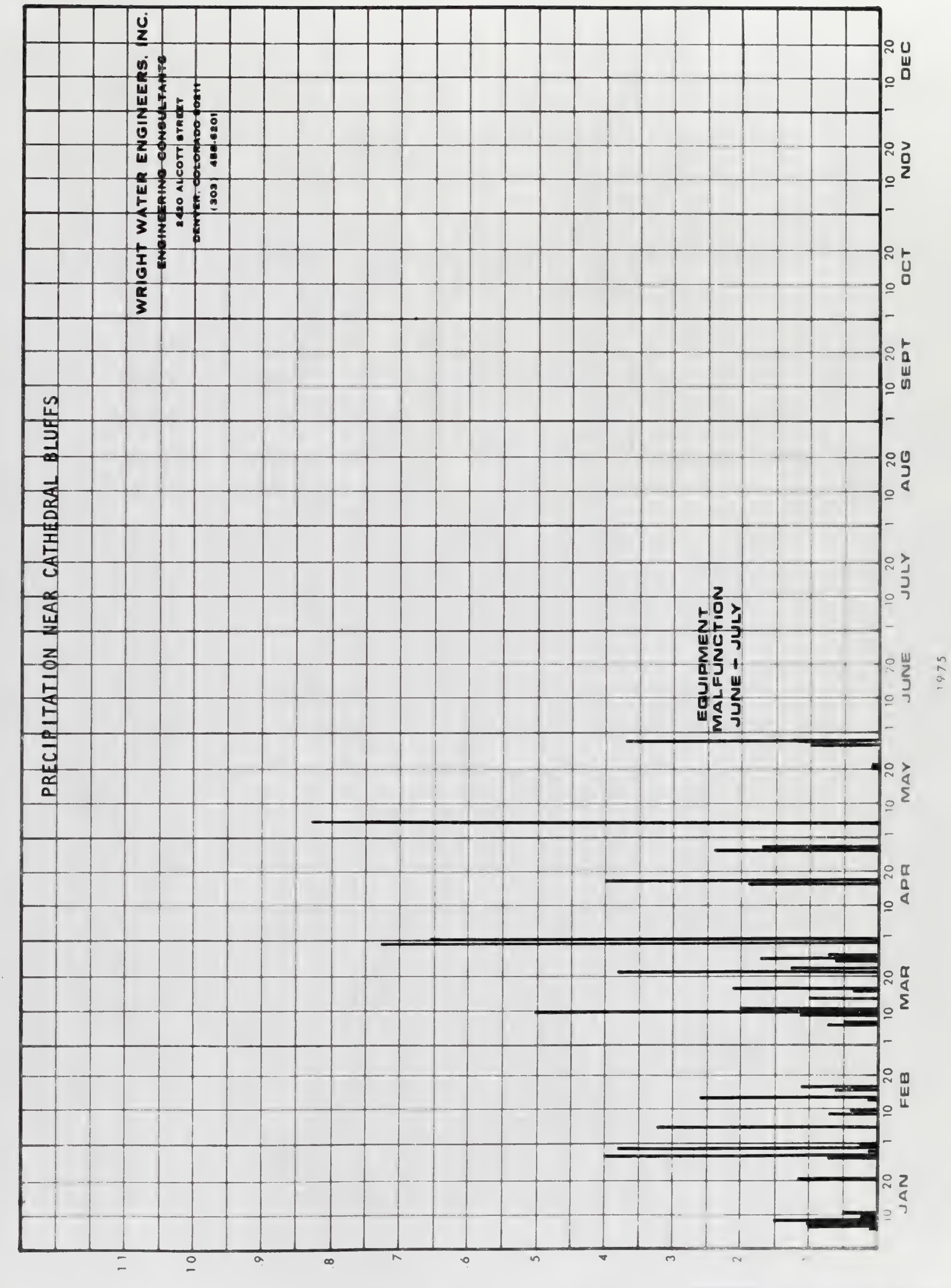

PRECIPITATION, STORAGE TYPE
CORRAL GULCH WEST OF TRACT C-a
TOTAL PRECIPITATION FOR TIME INTERVAL
BETWEEN READINGS
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201
PRECIPITATION IN INCHES
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
1 10 20
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV
DEC
1975

FIGURE 1.2-14



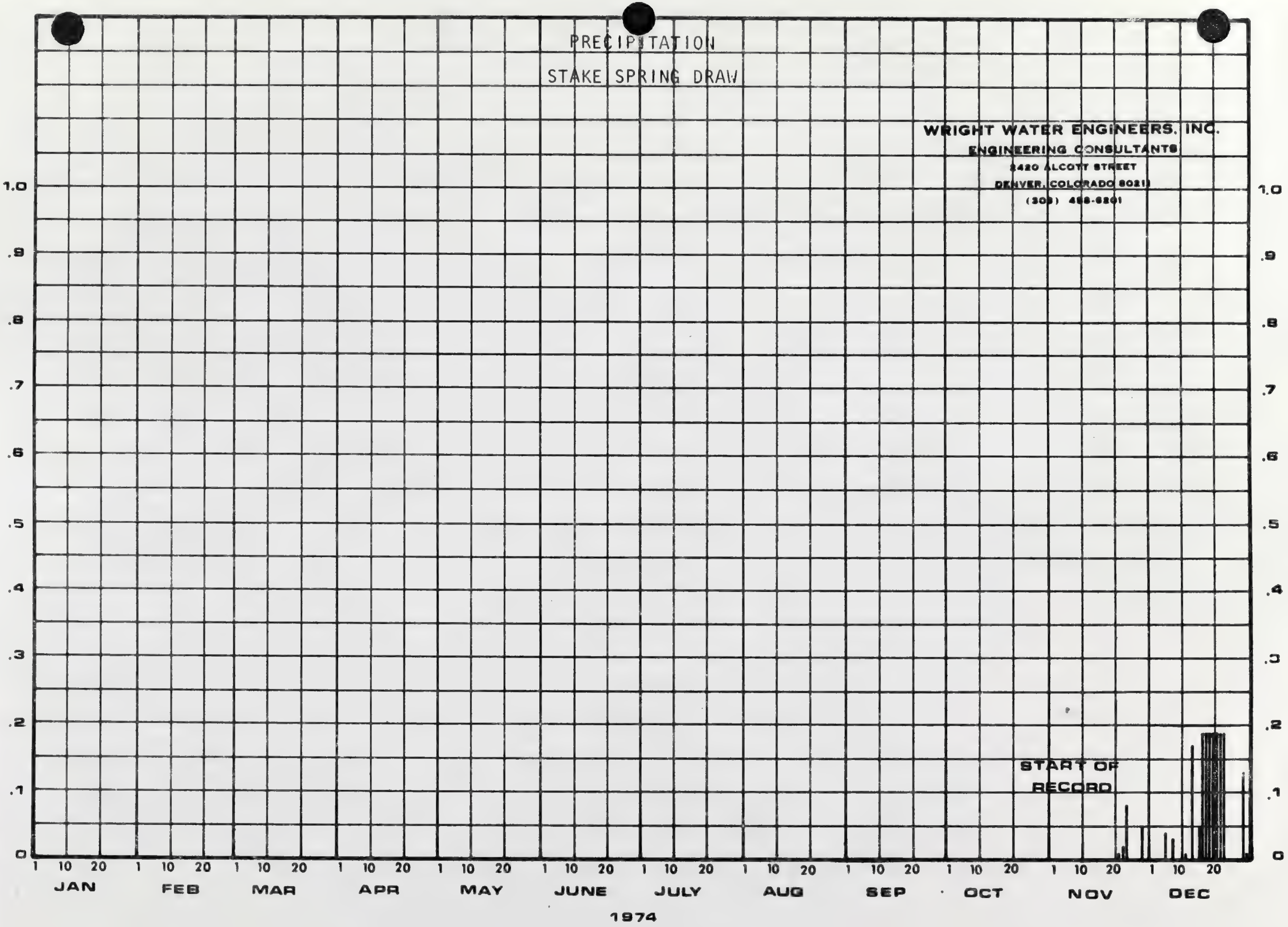
PRECIPITATION NEAR CATHEDRAL BLUFFS
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 480-1700
START OF RECORD
0
.1
.2
.3
.4
.5
.6
.7
.8
.9
1.0
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1974

FIGURE 1.2-15



PRECIPITATION NEAR CATHEDRAL BLUFFS

FIGURE 1.2-16



RBOSP PROGRESS REPORT

FIGURE 1.2-17

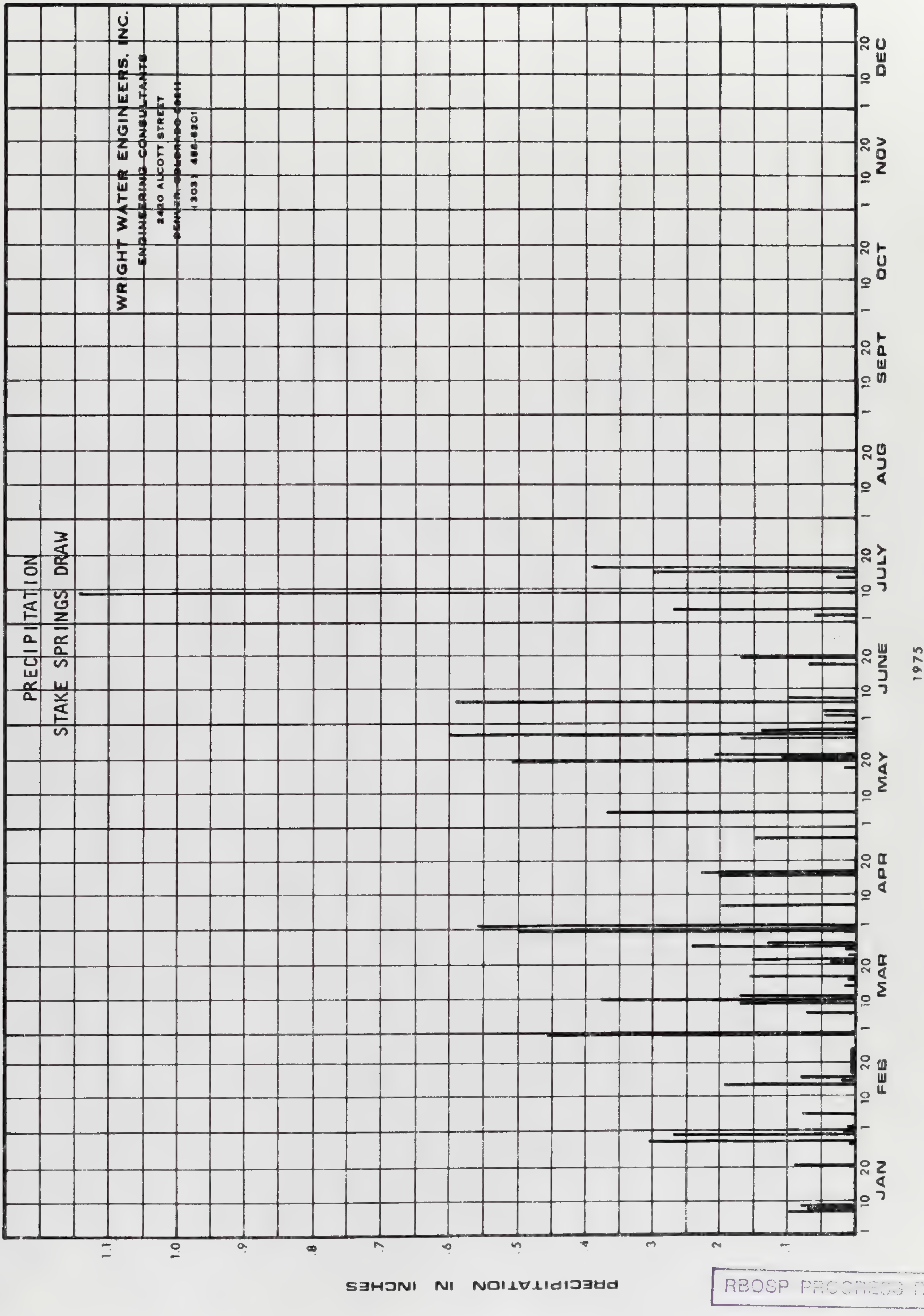

PRECIPITATION
STAKE SPRINGS DRAW
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201
PRECIPITATION IN INCHES
1.1
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
1
10
20
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEPT
OCT
NOV
DEC
1975

FIGURE 1.2-18

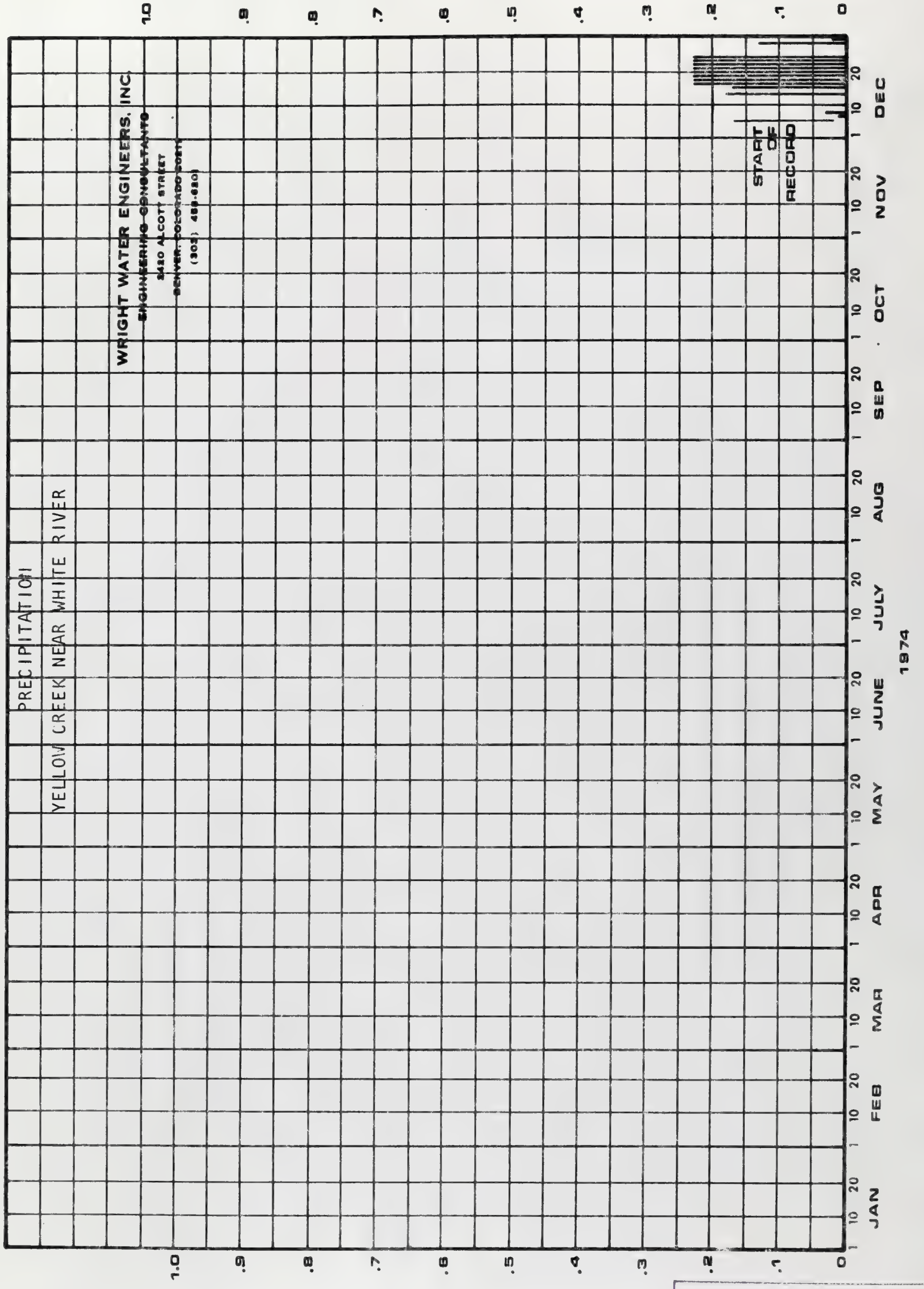

PRECIPITATION
YELLOW CREEK NEAR WHITE RIVER
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
START OF RECORD
0
.1
.2
.3
.4
.5
.6
.7
.8
.9
1.0
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1974

FIGURE 1.2-19

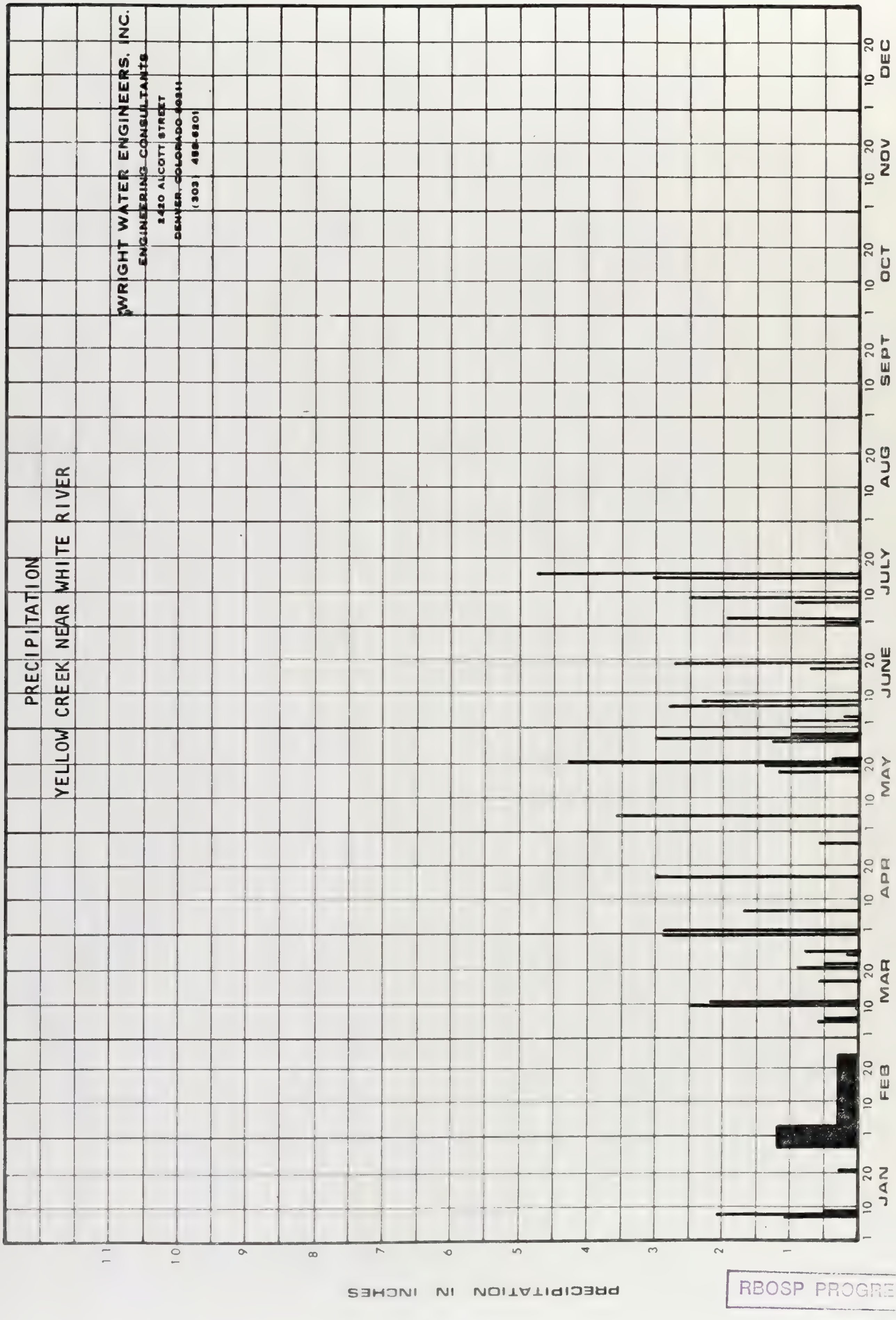

PRECIPITATION
YELLOW CREEK NEAR WHITE RIVER
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 480-8201
PRECIPITATION IN INCHES
1
2
3
4
5
6
7
8
9
10
11
1 10 20 JAN
1 10 20 FEB
1 10 20 MAR
1 10 20 APR
1 10 20 MAY
1 10 20 JUNE
1 10 20 JULY
1 10 20 AUG
1 10 20 SEPT
1 10 20 OCT
1 10 20 NOV
1 10 20 DEC
1975

FIGURE 1.2-20

SECTION 1,2,3

1.2.3 ALLUVIAL AQUIFERS

RBOSP Progress Report No. 2 described the drilling and completion of seven alluvial aquifer test holes associated with Tract C-a. Additional information is also included in RBOSP Progress Report No. 3. Those holes which encountered water (G-S S7, G-S S8, G-S S11, and G-S S12) were fitted with continuous (Stevens, Type F) water level recorders. Table 1.2-7 is a summary of the water quality data from samples of the alluvial aquifer to date. Water quality information from the four "wet" holes (G-S S7, G-S S8, G-S S11, and G-S S12) covering March, April and May is presented in RBOSP Progress Report No. 3.

A program involving the drilling of eight additional alluvial water monitoring holes began on June 18, 1975. The holes were drilled to obtain subsurface hydrological and environmental baseline data around 84 Mesa. The drilling program was completed on July 16, 1975. Figure 1.2-1 shows the locations of alluvial monitoring holes. Of the eight holes drilled, only four encountered water (G-S S19, G-S S22, G-S S23, and G-S S24). The first water samples for these four monitor holes were collected on June 30, 1975. The analyses of these samples are shown in the Raw Data Volume, Section 1.2.3. Figures 1.2-21 through 1.2-28 show the static water levels, conductivity, temperature and pH of alluvial holes versus time. The ground water geologists field reports is included in the Appendix of this report.

A 5-1/2-inch O.D. Becker Hammer was used for drilling the alluvial holes. One advantage of using the Becker-Hammer method is the continuous recovery of clean formation samples. Two-inch inside diameter plastic casing perforated with bandsaw cut slots over the entire aquifer interval was installed in each hole. The annulus was then backfilled with washed gravel. Five feet of 7-inch O.D. steel pipe was cemented to the hole as surface casing. Thread protector caps were installed to protect holes from contamination.

The thickness of the alluvium ranged from 12-20 feet in the small tributary holes to around 90 feet for Duck Creek and the tributary to Yellow Creek alluvium. The alluvium consists of clay, silt, fine sand and rock fragments derived from the Uinta Formation and the Parachute Creek Member of the Green River Formation. The lower part of the alluvium at Duck Creek and Yellow Creek contains more and coarser gravel than the small tributary alluvium drilled at G-S S15, S-G S16, S-S S17 and G-S S18. The tributary deposits consist of colluvial and alluvial fan deposits.

Water quality measured during the drilling program indicated the following ranges: temperature 10.5 to 12.1°C, specific conductance 1910 to 2275 umhos/cm, and pH 6.8 to 7.0.

The water level increases during May and June in the alluvial holes are thought to be due to infiltration of increased runoff from snowmelt. The magnitude of the increase varied depending upon the drainage system in which the hole was located.

The water level in alluvial hole G-S S7 on Corral Gulch at the western edge of the Tract has declined since monitoring began in January, 1975, with the exception of approximately two foot increase during June 1975.

The water level in alluvial hole G-S S12 has declined slightly since January 1975 with approximately 1/2 foot increase in May and a 3/4 foot drop at the beginning of July.

Water levels in alluvial holes G-S S8 and G-S S11 increased over 5 feet during May. The associated Box Elder Gulch had flow during this time. The increase in water level in G-S S11 in April is probably due to recharge by the discharge water during the G-S D19 pump test.

G-S S24 had declined less rapidly from June 30 than either G-S S11 or G-S S8. Its water level is approximately that of Corral Gulch and could not have risen above its present value without discharging to Corral Gulch. A similar small decrease in water level occurred in G-S S22.

Water levels in the Duck Creek alluvium have declined from June 30 when the first readings were obtained.

The alluvium of Dry Fork at G-S S6 is unsaturated. Also the alluvium of Rinky Dink Gulch is unsaturated as determined from G-S S13 and G-S S14.

The alluvial aquifers appear to be intimately tied to the surface water system. The alluvium receives recharge from stream when the water table is below stream level and contributes to springs and surface flow when the water table intersects ground surface.

The water level responses in the alluvial holes indicate the greatest source of recharge is snowmelt on Cathedral Bluffs. Water level changes appear to dissipate downstream due to valley widening and attenuation of the crest.

Field measurements of water quality, conductivity and pH were made as part of the water quality study of the alluvial aquifer (see Figures 1.2-21 through 1.2-36). Conductivities ranged from a low of 860 in G-S S8 to a high of 2275 in G-S S23. For individual holes, conductivites have been relatively stable with a slight increase and decline during June and July. The decline in conductivity has been associated with constant to slightly increasing values of total dissolved solids (TDS) indicating a change in composition. Conductivity is an approximate indicator of TDS. The conversion factor to TDS from conductivity is x 0.72. The high conversion factor is due to the large sulfate content. Changes in conductivity may indicate changes in composition and not changes in TDS.

The pH of the alluvial water is generally slightly acidic with a range of 6.0 to 7.2 with an average of 6.7. Most holes fluctuate between 6.0 and 6.8.

Temperatures have ranged from 7.5 to 13.5°C. Water temperatures increased from March through early July and then declined with the exception of G-S S7. During the summer months, temperature fluctuations of 2°C are observed which may be caused by rapid warming of the sample during hot days.

Individual wells show considerable change in major components, some may double, from one sample to the next though TDS remains relatively stable. Maximum, minimum and average values for wet chemical and spectrographic analysis are presented in Tables 1.2-7 and 1.2-7a. The average values except for fluoride are slightly higher than those of the upper aquifer. The carbonate ion present in some analysis are not present in the alluvial water, but represent changes in carbonate equilibrium with an increase in pH to over 8 by the time the analysis was performed.

RBOSP [illegible]

TABLE 1.2-7

WATER QUALITY ANALYSIS SUMMARY

WET CHEMICAL ANALYSIS

ALLUVIAL AQUIFERS

Item	Low	High	Average	No. Items Averaged
Alkalinity	329.000	615.000	469.308	49
Aluminum	< 0.100	< 0.100	0.0	4
Ammonia	< 0.100	1.000	0.287	39
Arsenic	< 0.010	0.010	0.000	49
Barium	< 1.000	< 1.000	0.0	49
Bicarbondate	370.000	750.000	566.735	49
Boron	< 0.010	27.000	1.783	49
Cadmium	< 0.010	0.090	0.009	49
Calcium	28.000	210.000	99.163	49
Carbonate	< 0.100	54.000	5.510	49
Chloride	6.800	71.000	17.698	49
Chromium	< 0.050	< 0.010	0.0	49
Conductance	860.000	2370.000	1565.518	49
Copper	< 0.100	0.300	0.033	49
Cyanide	< 0.010	0.010	0.001	49
Dissolved Solids	640.000	1670.000	1134.592	49
Fluoride	< 0.100	0.800	0.333	48
Gross Alpha	1.400	17.000	8.764	28
Gross Beta	1.000	12.000	6.250	4
Hardness	280.000	765.000	570.816	49
Hydroxide	--	--	0.0	0
Iron	< 0.050	28.000	8.018	49
Lead	0.020	0.800	0.214	49
Lithium	--	--	0.0	0
Magnesium	3.700	874.000	94.939	49
Manganese	< 0.050	14.000	2.298	49
Mercury	< 0.010	0.002	0.000	49
Nickel	0.010	0.200	0.049	49
Nitrate	< 0.100	21.000	5.106	49
pH	6.000	7.200	6.665	49
Phosphate	< 0.100	0.200	0.010	49
Potassium	--	--	0.0	0
Selenium	< 0.100	< 0.010	0.0	49
Silicon Dioxide	22.000	44.000	32.327	49
Silver	< 0.100	0.070	0.003	49
Sodium	75.000	310.000	191.531	49
Sulfate	145.000	780.000	423.877	49
Sulfide	--	--	0.0	0
TOC	7.000	100.000	33.100	20
Zinc	< 0.100	5.700	0.625	48

RBOSP PR

TABLE 1.2-7a

SUMMARY OF QUALITATIVE SPECTROGRAPHIC ANALYSIS
ALLUVIAL AQUIFERS

Item	Low	High	Average	No. Items Averaged
Aluminum	0.050	0.500	0.161	9
Antimony	--	--	0.0	0
Arsenic	--	--	0.0	0
Barium	--	--	0.0	0
Berylium	--	--	0.0	0
Bismuth	--	--	0.0	0
Boron	0.100	0.500	0.267	9
Cadmium	--	--	0.0	0
Calcium	99999.000	99999.000	0.0	0
Cerium	--	--	0.0	0
Cesium	0.001	0.001	0.001	1
Chromium	0.000	0.000	0.000	1
Cobolt	--	--	0.0	0
Columbium	--	--	0.0	0
Copper	0.001	0.010	0.004	8
Dysprosium	--	--	0.0	0
Erbium	--	--	0.0	0
Europium	--	--	0.0	0
Gadolinium	--	--	0.0	0
Gallium	--	--	0.0	0
Germanium	--	--	0.0	0
Gold	--	--	0.0	0
Hanium	--	--	0.0	0
Holmium	--	--	0.0	0
Indium	--	--	0.0	0
Iridium	--	--	0.0	0
Iron	0.010	0.100	0.044	9
Lanthanum	--	--	0.0	0
Lead	0.001	0.001	0.001	3
Lithium	0.001	0.100	0.042	5
Lutetium	--	--	0.0	0
Magnesium	999999.000	99999.000	0.0	0
Manganese	0.001	0.100	0.017	9
Mercury	--	--	0.0	0
Molybdenum	0.001	0.050	0.016	8
Neodymium	--	--	0.0	0
Nickel	--	--	0.0	0
Osmium	--	--	0.0	0
Palladium	--	--	0.0	0
Platinum	--	--	0.0	0

RBOSP [illegible]

TABLE 1.2-7a
Continued

Item	Low	High	Average	No. Items Averaged
Potassium	0.100	2.000	0.656	9
Praseodymi	--	--	0.0	0
Radium	0.100	0.700	0.256	18
Rhenium	--	--	0.0	0
Rhodium	--	--	0.0	0
Rubidium	--	--	0.0	0
Ruthenium	--	--	0.0	0
Samarium	--	--	0.0	0
Scandium	--	--	0.0	0
Selenium	--	--	0.0	0
Silicon	2.000	20.000	8.000	9
Silver	0.000	0.000	0.000	1
Sodium	2.000	99999.000	5.400	5
Strontium	0.100	0.100	0.100	6
Tantalum	--	--	0.0	0
Terbium	--	--	0.0	0
Thallium	--	--	0.0	0
Thorium	--	--	0.0	0
Thulium	--	--	0.0	0
Tin	--	--	0.0	0
Titanium	0.001	0.010	0.004	8
Tungsten	--	--	0.0	0
Uranium	--	--	0.0	0
Vanadium	--	--	0.0	0
Ytterbium	--	--	0.0	0
Yttrium	--	--	0.0	0
Zinc	0.001	0.001	0.001	2
Zirconium	--	--	0.0	0

RBOSP PI [illegible]

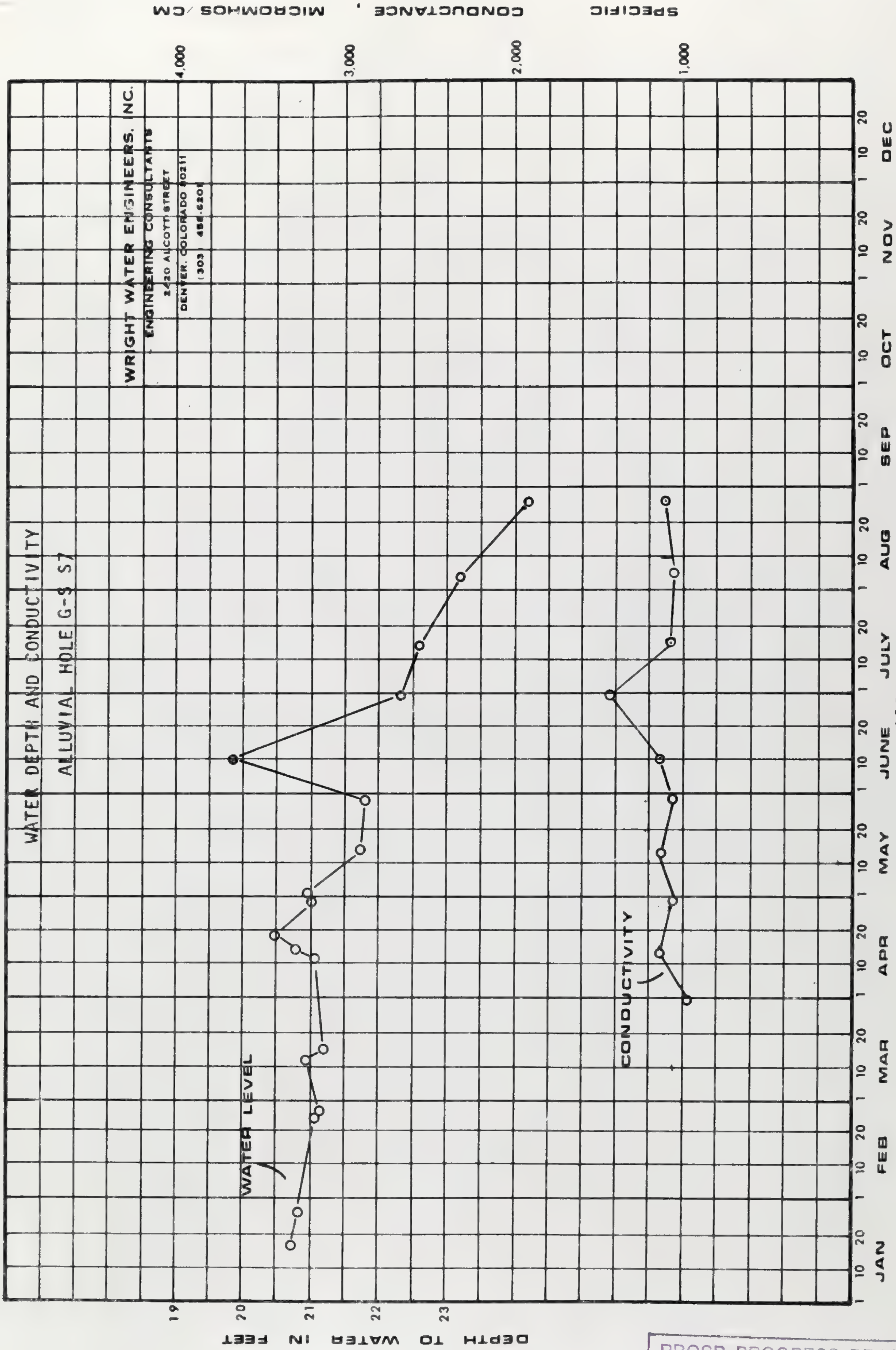

WATER DEPTH AND CONDUCTIVITY
ALLUVIAL HOLE G-9 S7
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201
WATER LEVEL
CONDUCTIVITY
SPECIFIC CONDUCTANCE, MICROMHOS/CM
4,000
3,000
2,000
1,000
DEPTH TO WATER IN FEET
19
20
21
22
23
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1975

FIGURE 1.2-21

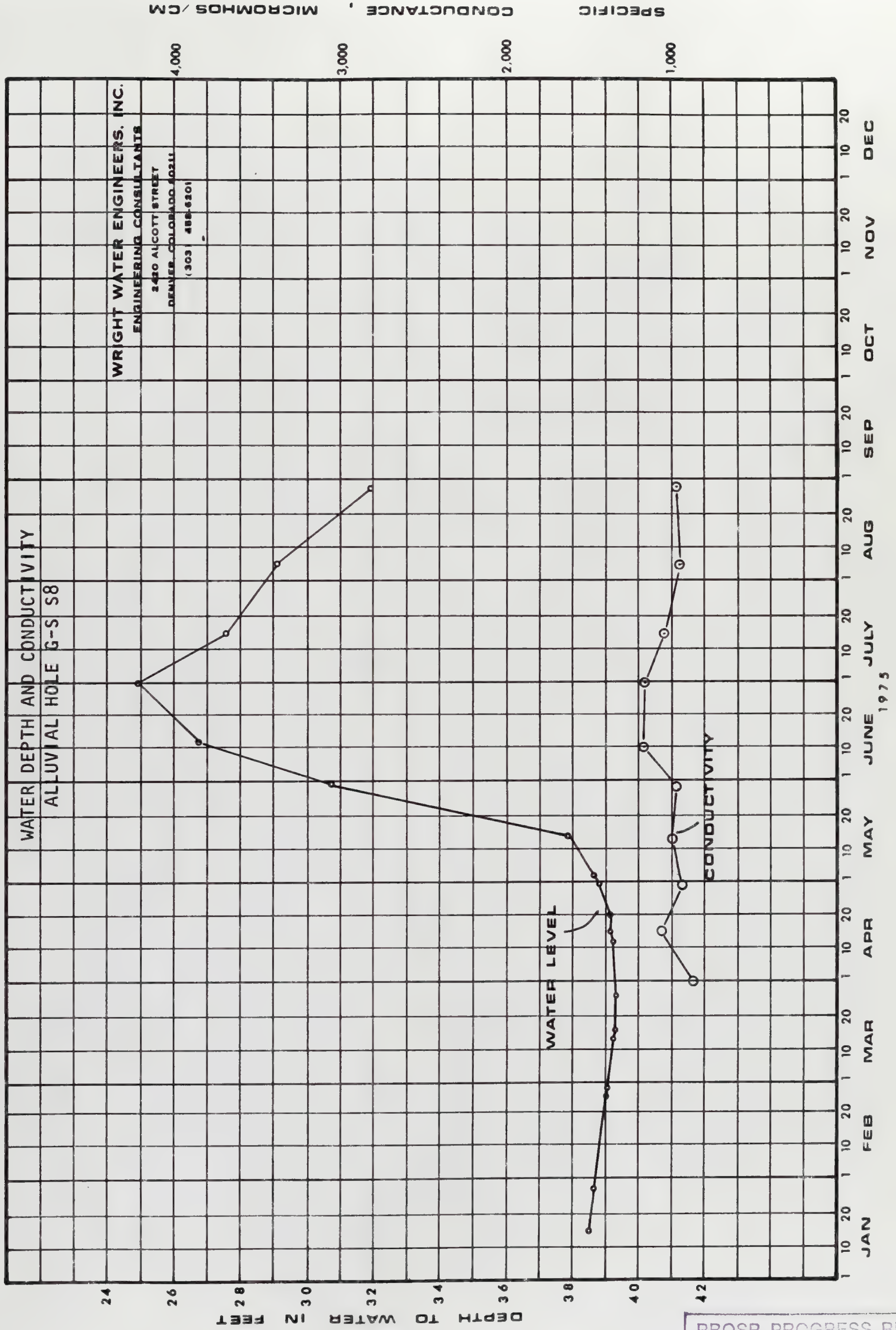
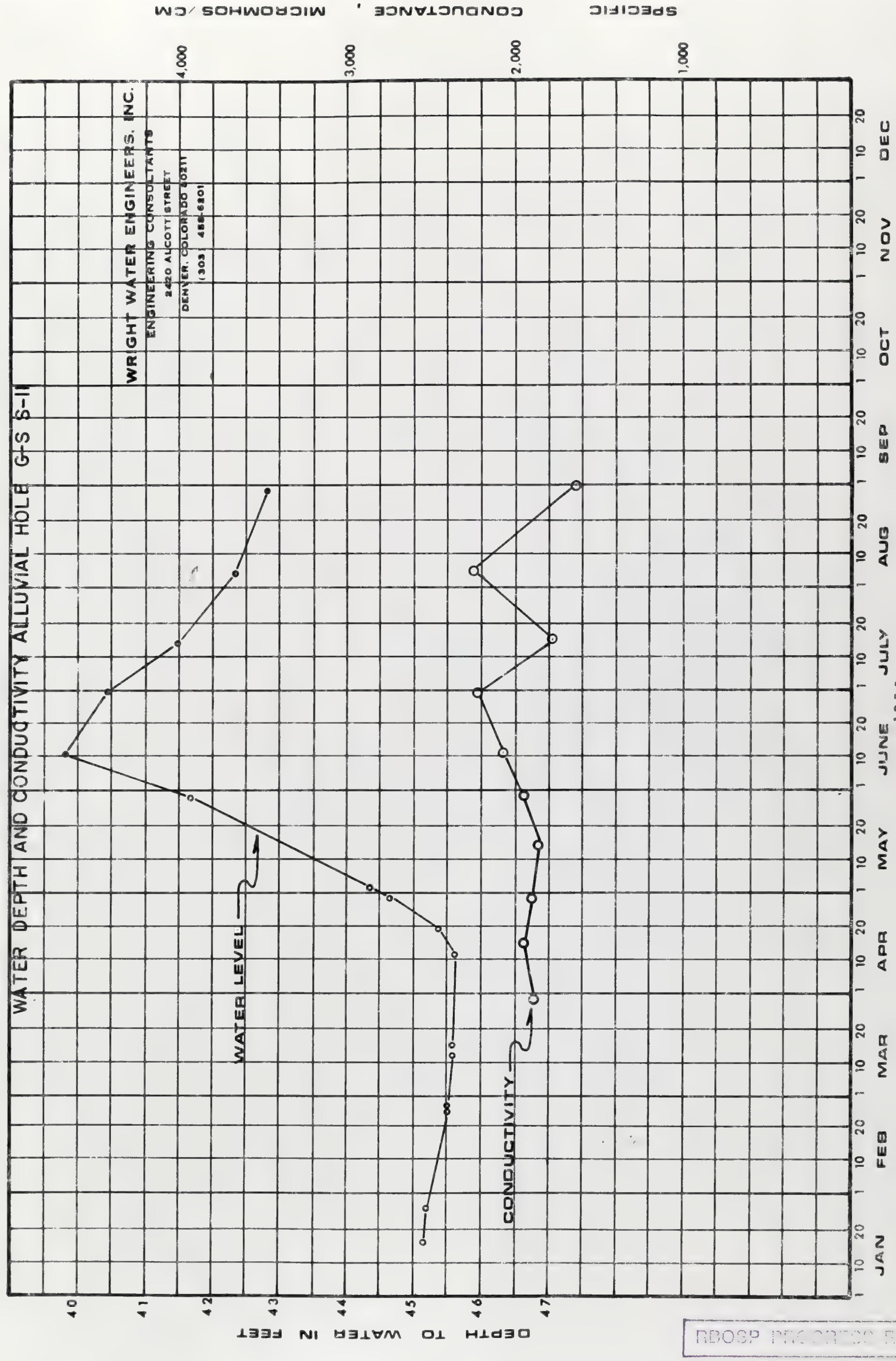
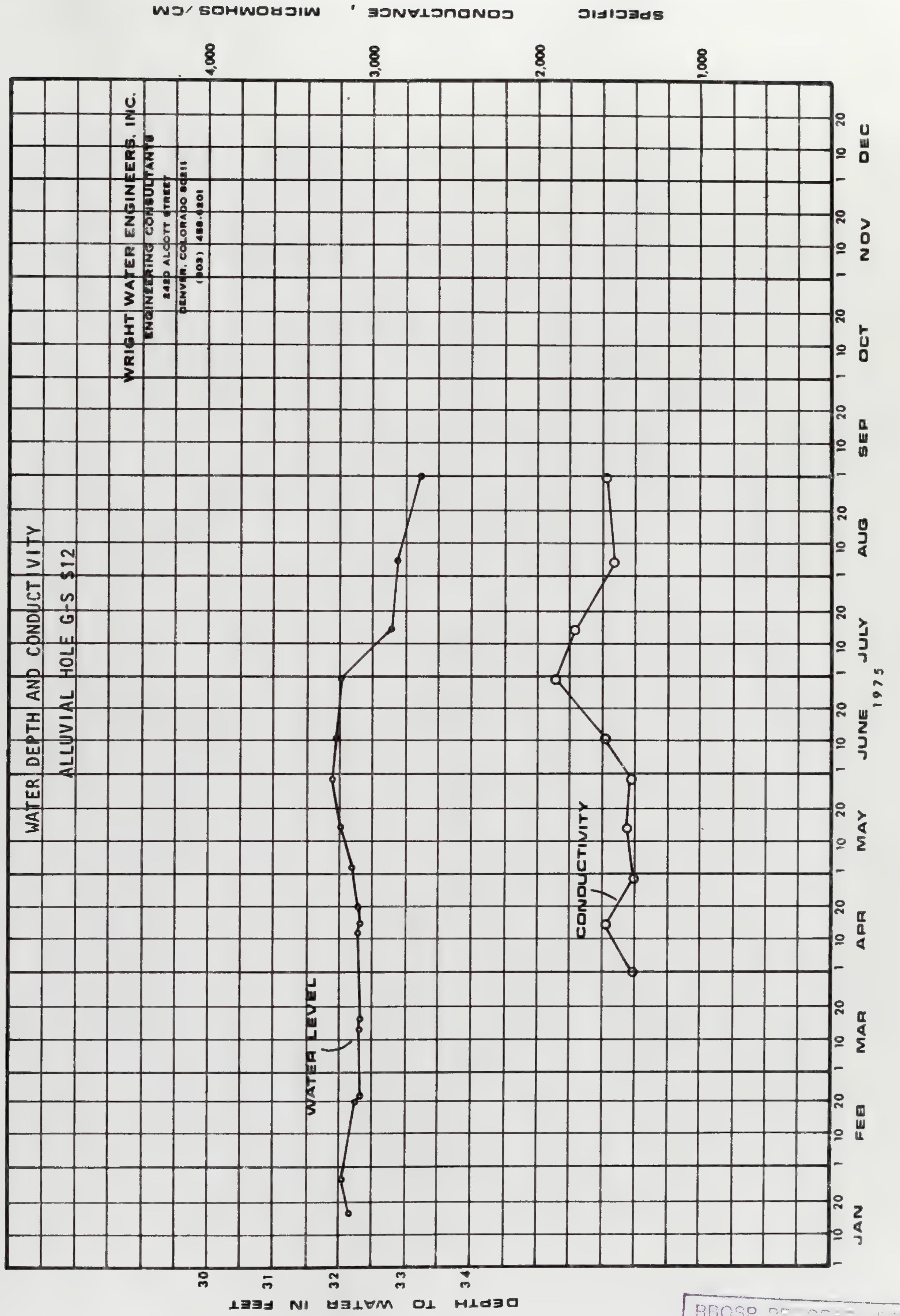

WATER DEPTH AND CONDUCTIVITY
ALLUVIAL HOLE G-S S8
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201
SPECIFIC CONDUCTANCE, MICROMHOS/CM
4,000
3,000
2,000
1,000
DEPTH TO WATER IN FEET
24
26
28
30
32
34
36
38
40
42
WATER LEVEL
CONDUCTIVITY
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1975

FIGURE 1.2-22



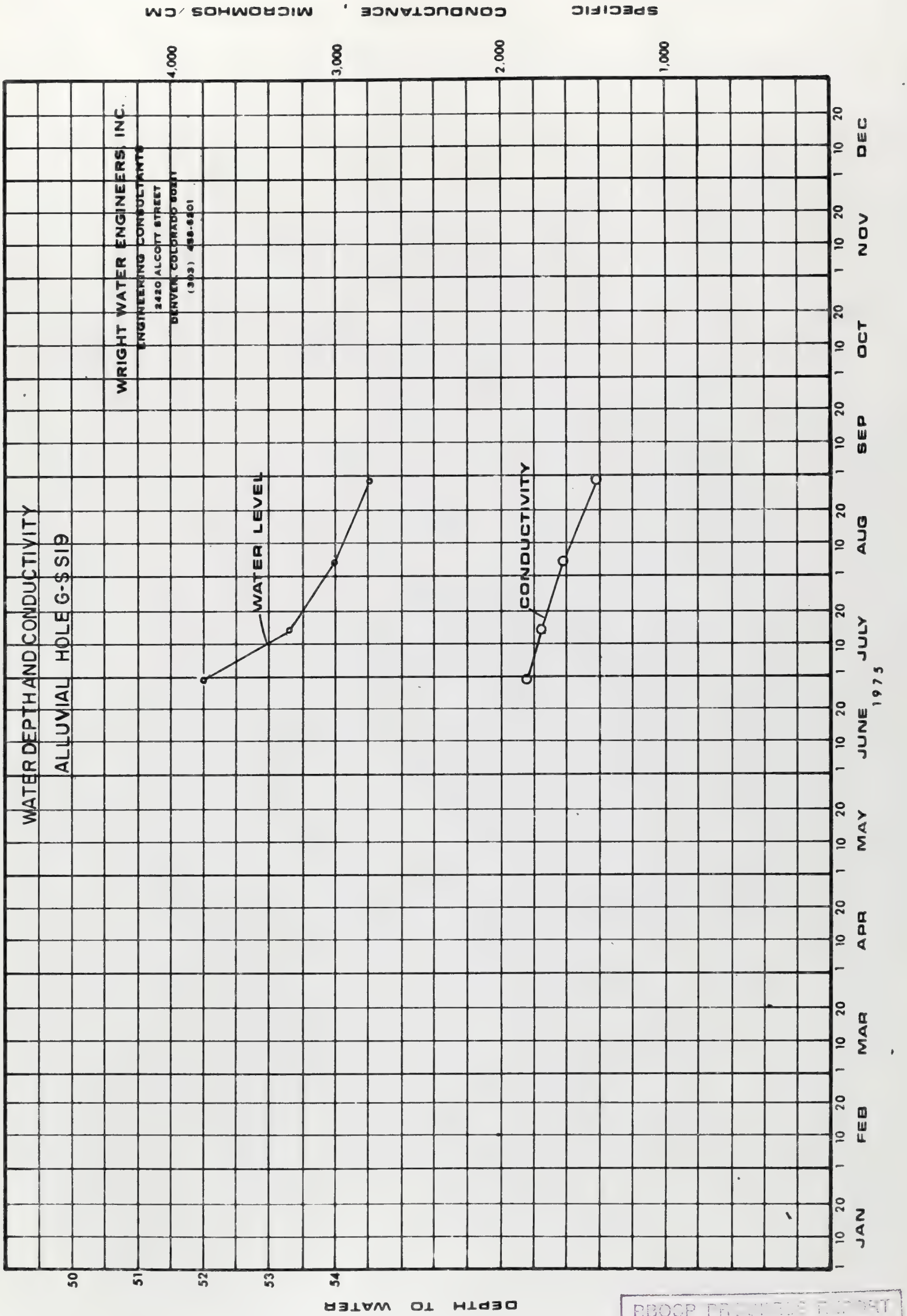
RBOSP PROGRESS REPORT

FIGURE 1.2-23



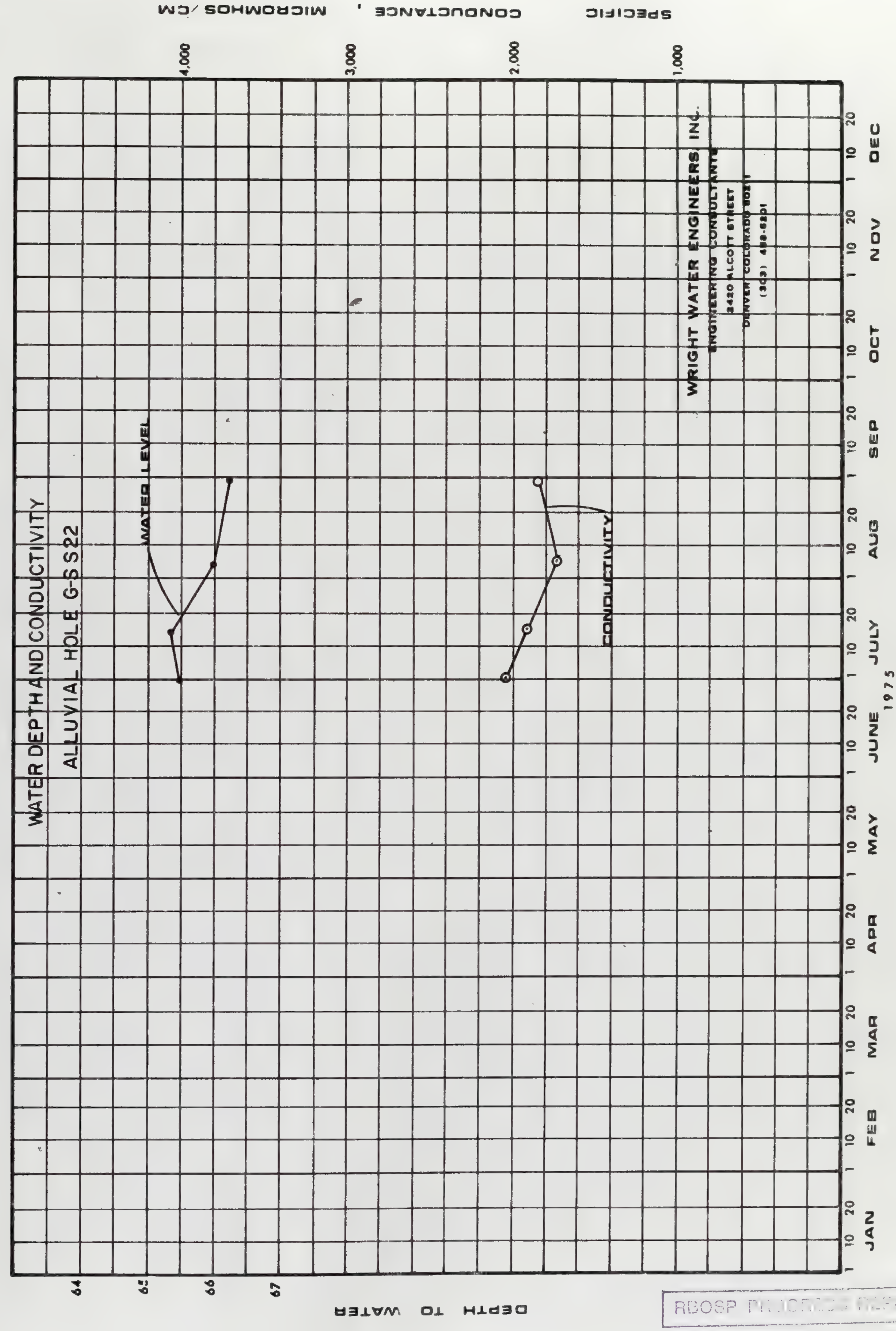
RBOSP PR

FIGURE 1.2-24



RBOSP PROGRESS REPORT

FIGURE 1.2-25


WATER DEPTH AND CONDUCTIVITY
ALLUVIAL HOLE G-S S22
WATER LEVEL
CONDUCTIVITY
SPECIFIC CONDUCTANCE, MICROMHOS/CM
4,000
3,000
2,000
1,000
DEPTH TO WATER
64
65
66
67
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1975
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

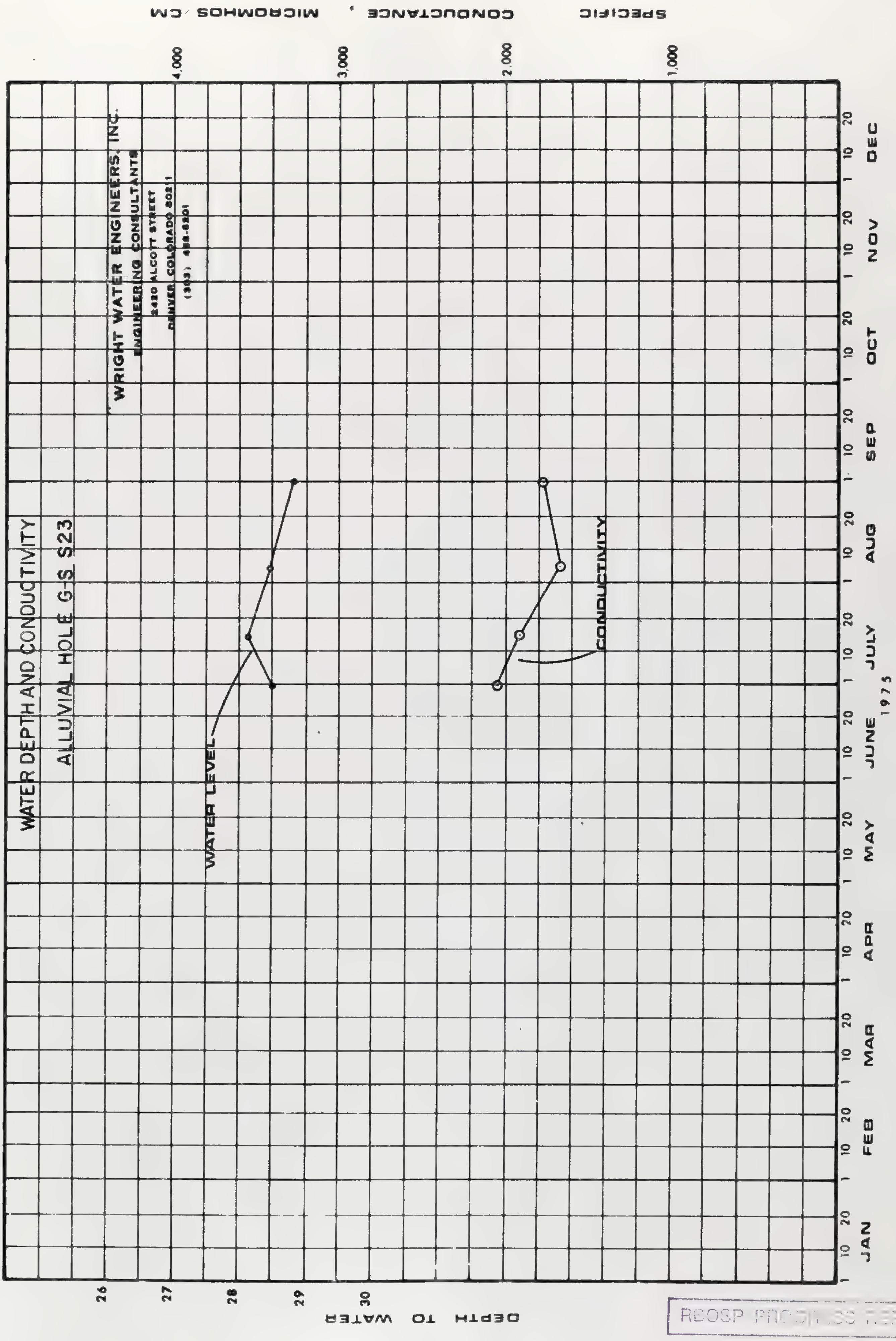

WATER DEPTH AND CONDUCTIVITY
ALLUVIAL HOLE G-S S23
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201
WATER LEVEL
CONDUCTIVITY
SPECIFIC CONDUCTANCE, MICROMHOS/CM
4,000
3,000
2,000
1,000
DEPTH TO WATER
26
27
28
29
30
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1975

FIGURE 1.2-27

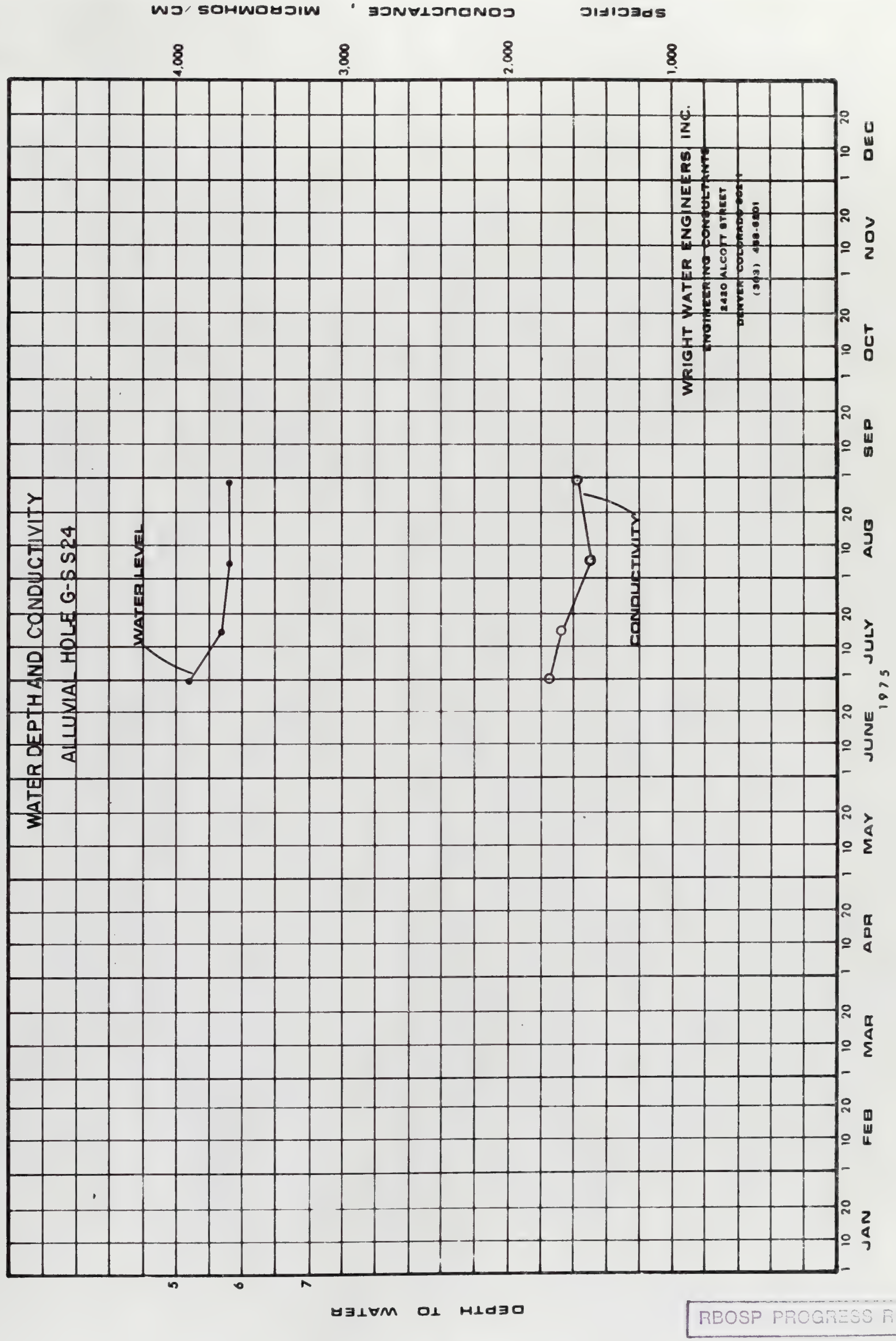

WATER DEPTH AND CONDUCTIVITY
ALLUVIAL HOLE G-S S24
WATER LEVEL
CONDUCTIVITY
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201
SPECIFIC CONDUCTANCE, MICROMHOS/CM
4,000
3,000
2,000
1,000
DEPTH TO WATER
5
6
7
JAN FEB MAR APR MAY JUNE JULY AUG SEP OCT NOV DEC
1 10 20
1975

FIGURE 1.2-28

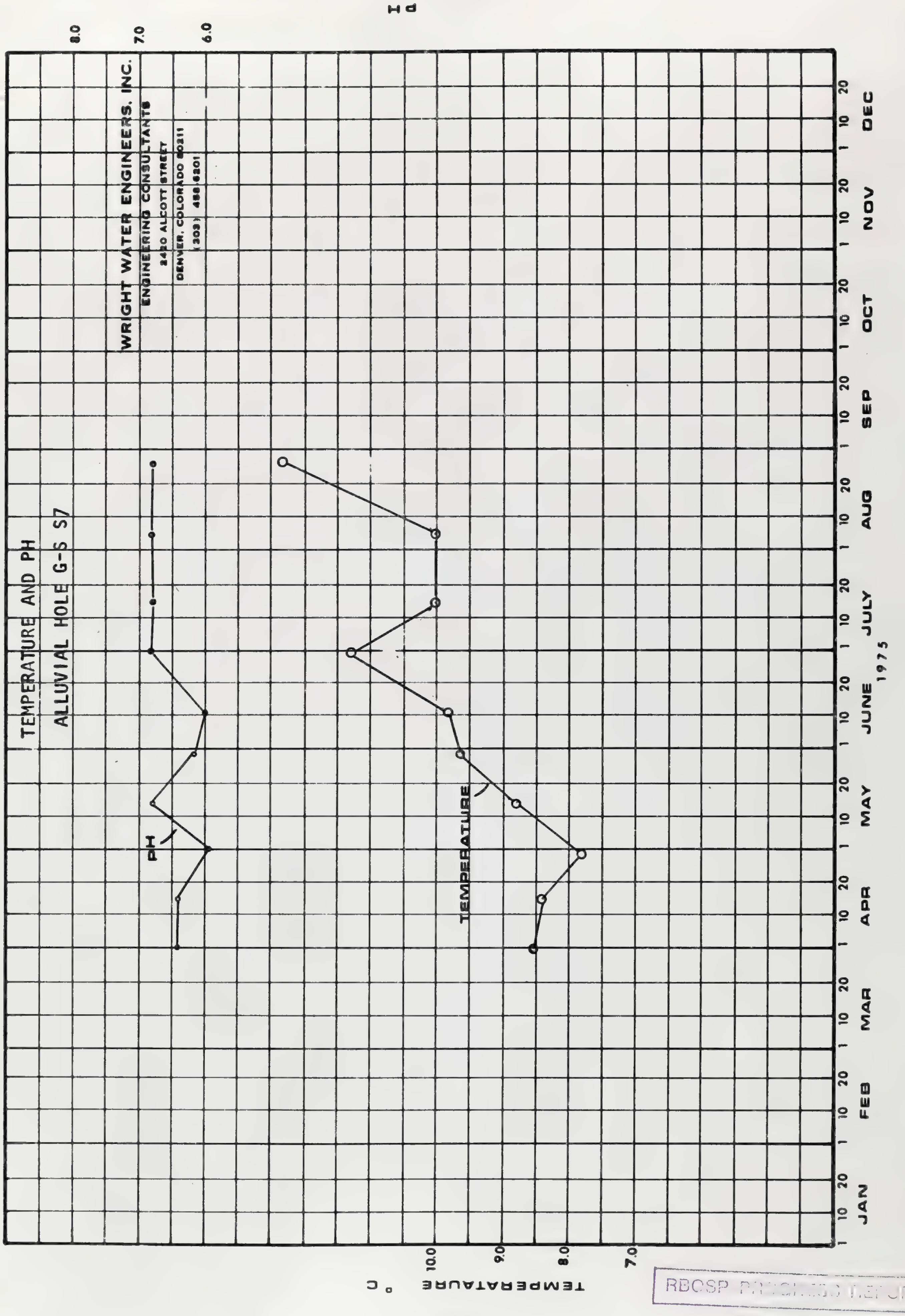

TEMPERATURE AND PH
ALLUVIAL HOLE G-S S7
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458 6201
PH
TEMPERATURE
pH
8.0
7.0
6.0
TEMPERATURE °C
10.0
9.0
8.0
7.0
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1975

FIGURE 1.2-29

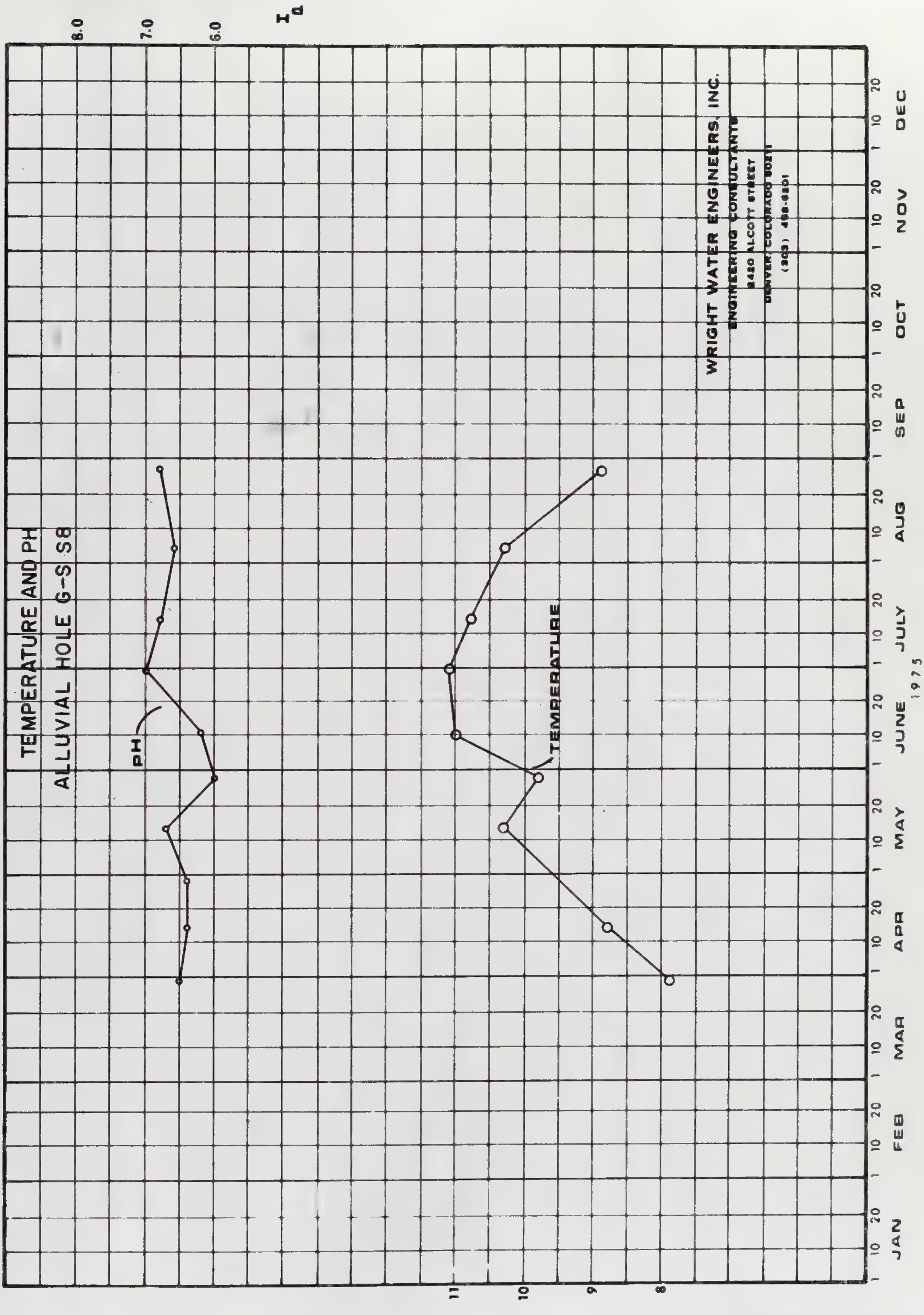
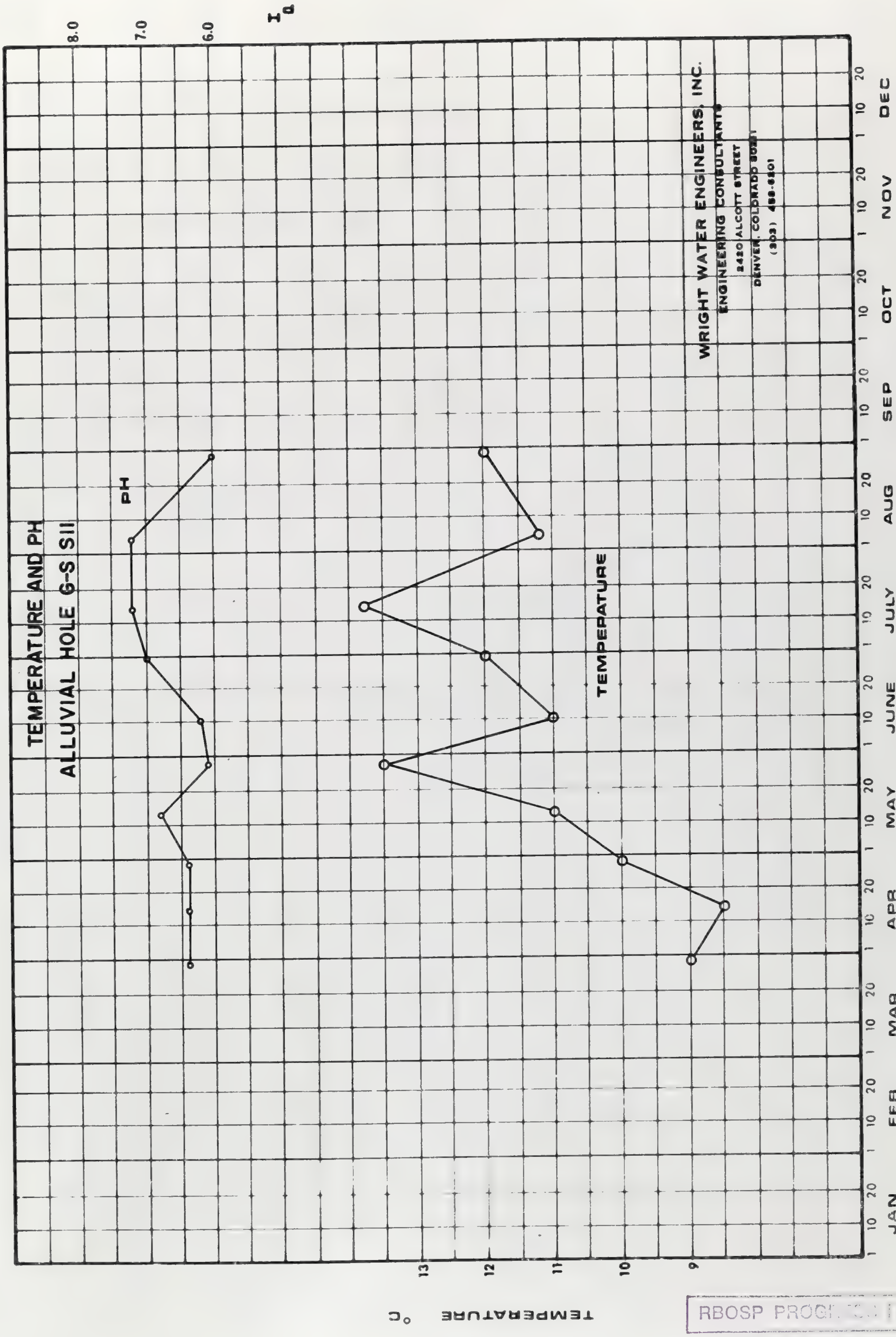

TEMPERATURE AND PH
ALLUVIAL HOLE G-S S8
PH
TEMPERATURE
pH
8.0
7.0
6.0
TEMPERATURE °C
11
10
9
8
JAN FEB MAR APR MAY JUNE JULY AUG SEP OCT NOV DEC
1 10 20
1975
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-30



RBOSP PROG[illegible]

FIGURE 1.2-31

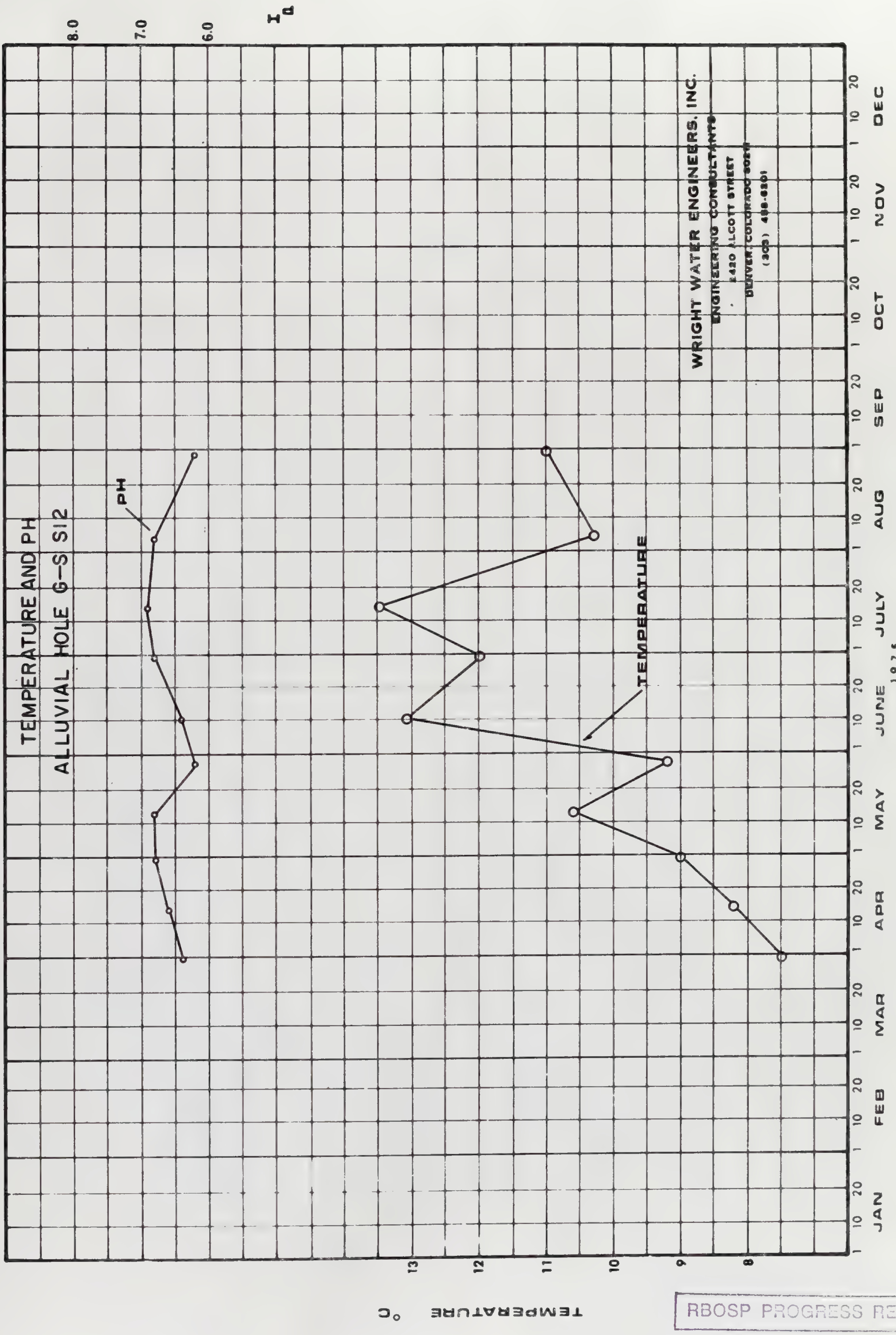

TEMPERATURE AND PH
ALLUVIAL HOLE G-S S12
PH
TEMPERATURE
pH
8.0
7.0
6.0
TEMPERATURE °C
13
12
11
10
9
8
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1975
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 480-6201

FIGURE 1.2-32

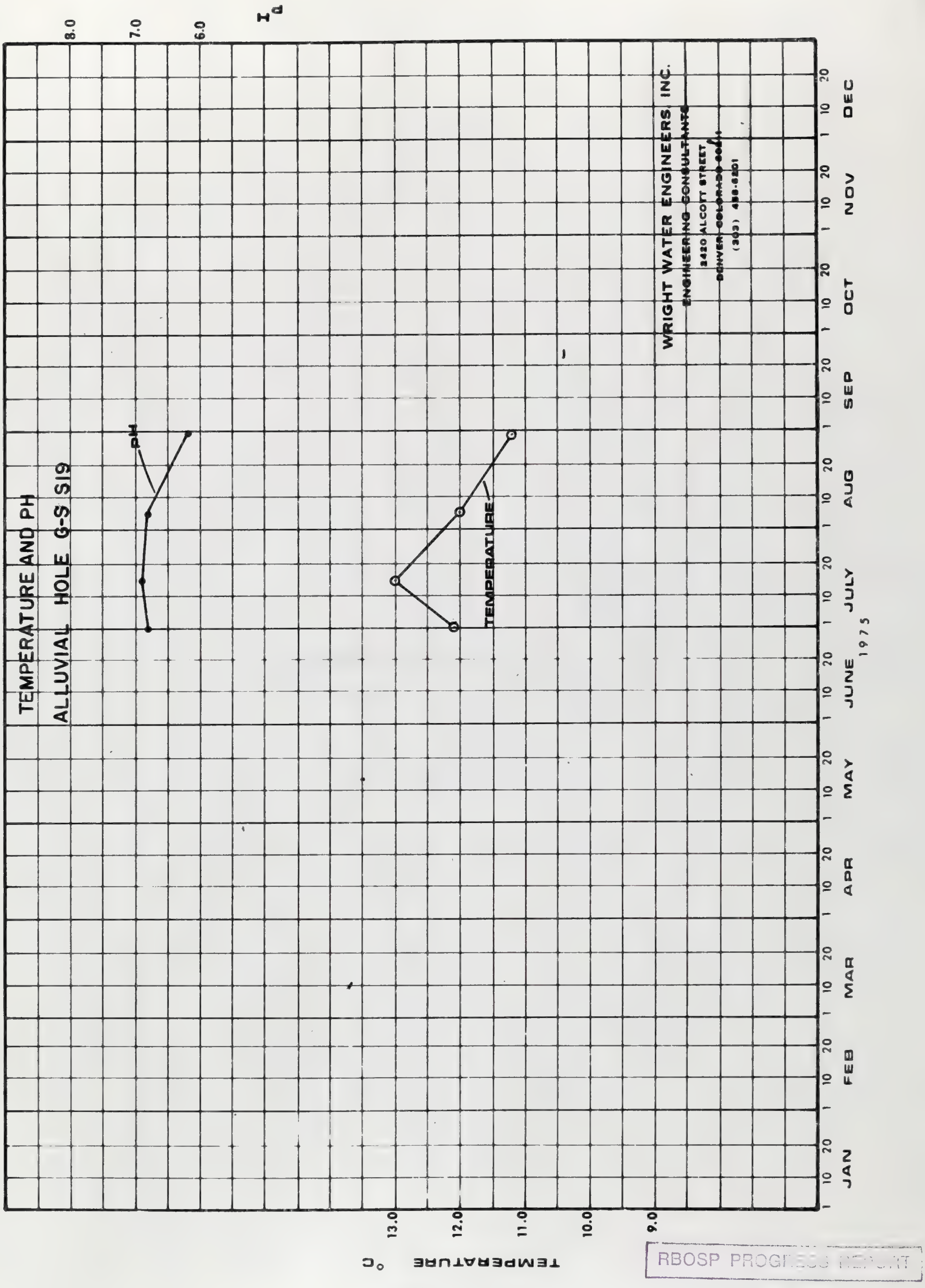
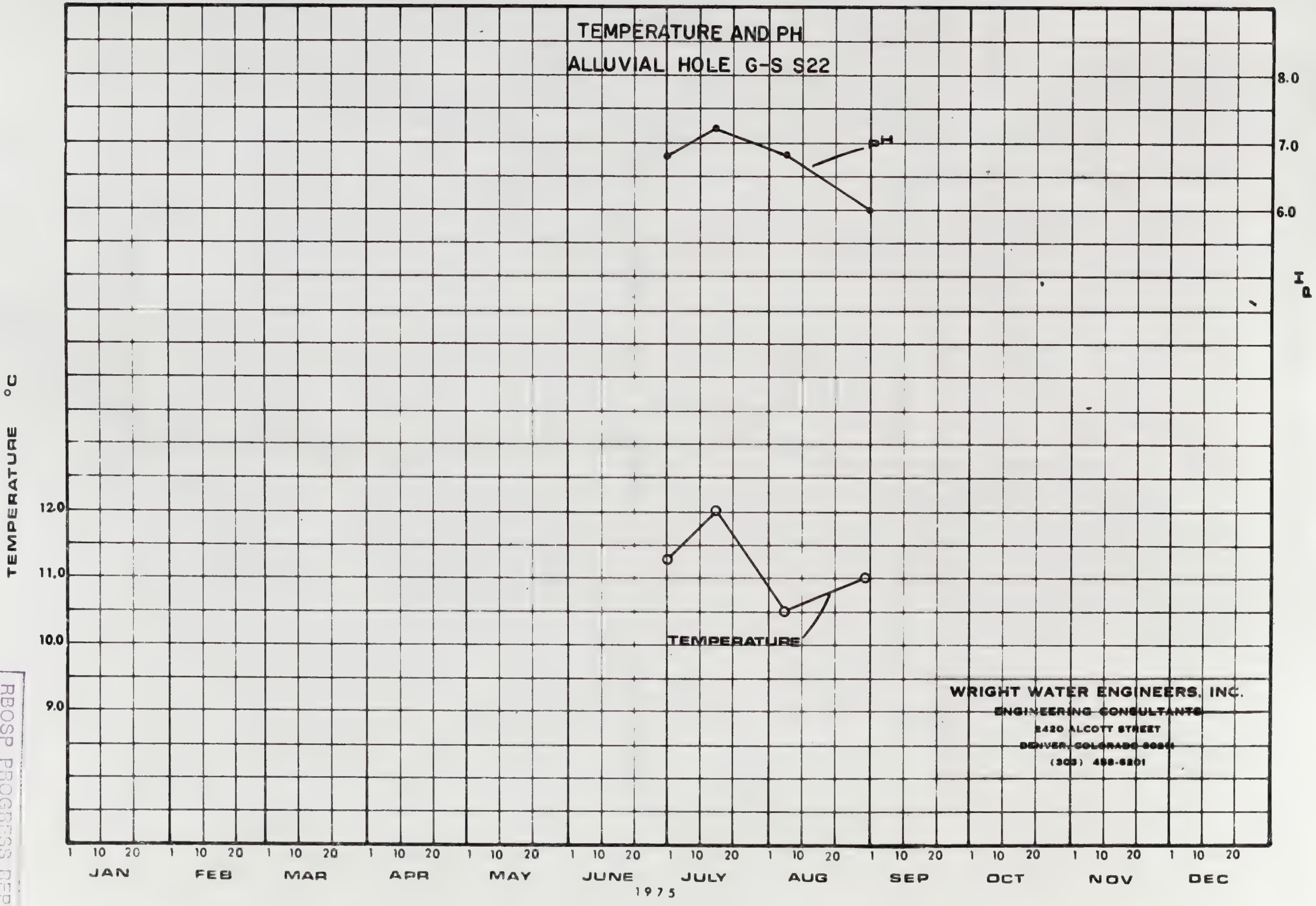

TEMPERATURE AND PH
ALLUVIAL HOLE G-S S19
PH
TEMPERATURE
pH
8.0
7.0
6.0
TEMPERATURE °C
13.0
12.0
11.0
10.0
9.0
JAN FEB MAR APR MAY JUNE JULY AUG SEP OCT NOV DEC
1 10 20
1975
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-33


TEMPERATURE AND PH
ALLUVIAL HOLE G-S S22
8.0
7.0
6.0
PH
PH
TEMPERATURE °C
12.0
11.0
10.0
9.0
TEMPERATURE
1 10 20 JAN
1 10 20 FEB
1 10 20 MAR
1 10 20 APR
1 10 20 MAY
1 10 20 JUNE
1 10 20 JULY
1 10 20 AUG
1 10 20 SEP
1 10 20 OCT
1 10 20 NOV
1 10 20 DEC
1975
WRIGHT WATER ENGINEERS, INC.
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2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-34

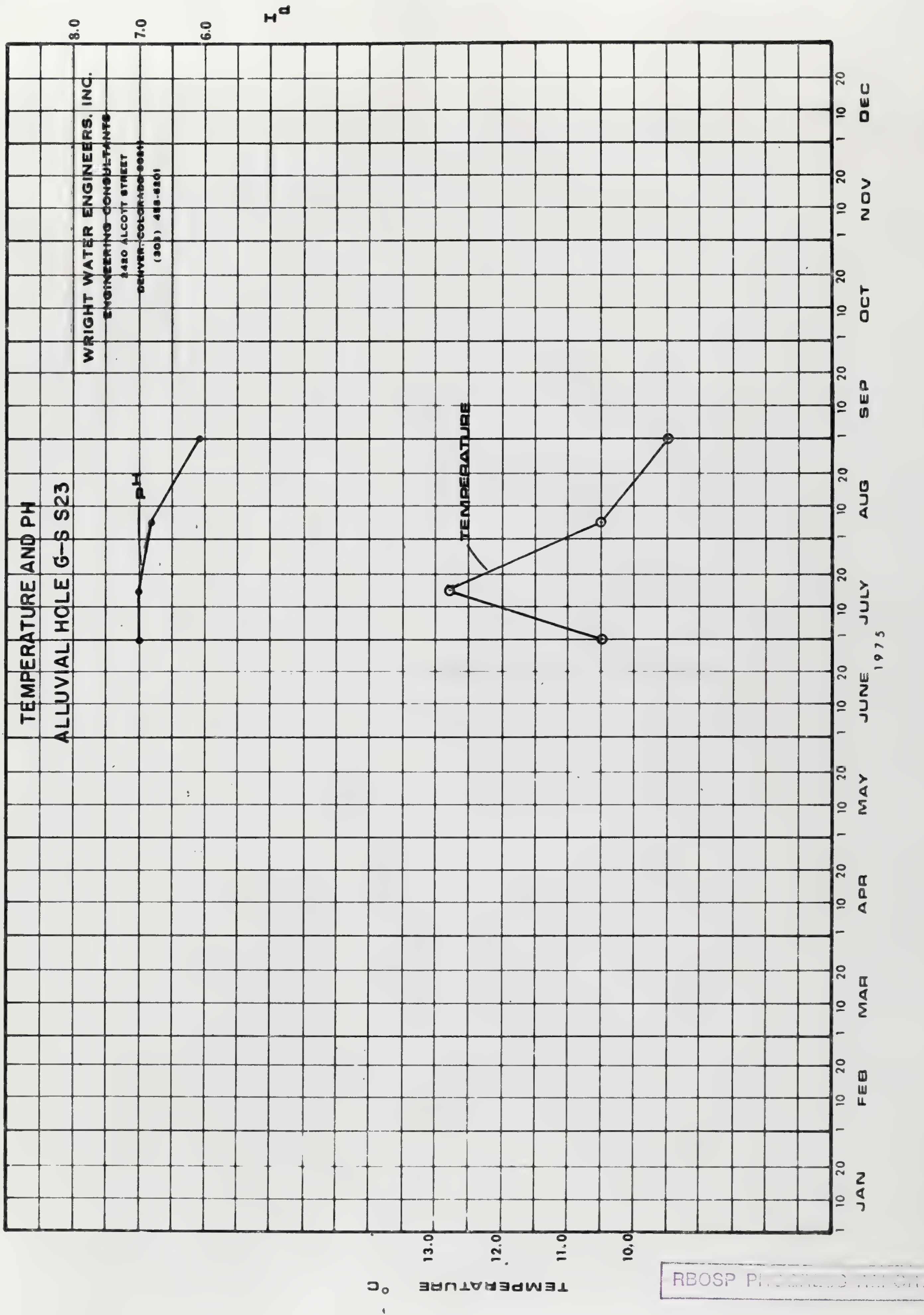

TEMPERATURE AND PH
ALLUVIAL HOLE G-S S23
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201
pH
TEMPERATURE
pH
8.0
7.0
6.0
TEMPERATURE °C
13.0
12.0
11.0
10.0
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1
10
20
1975

FIGURE 1.2-35

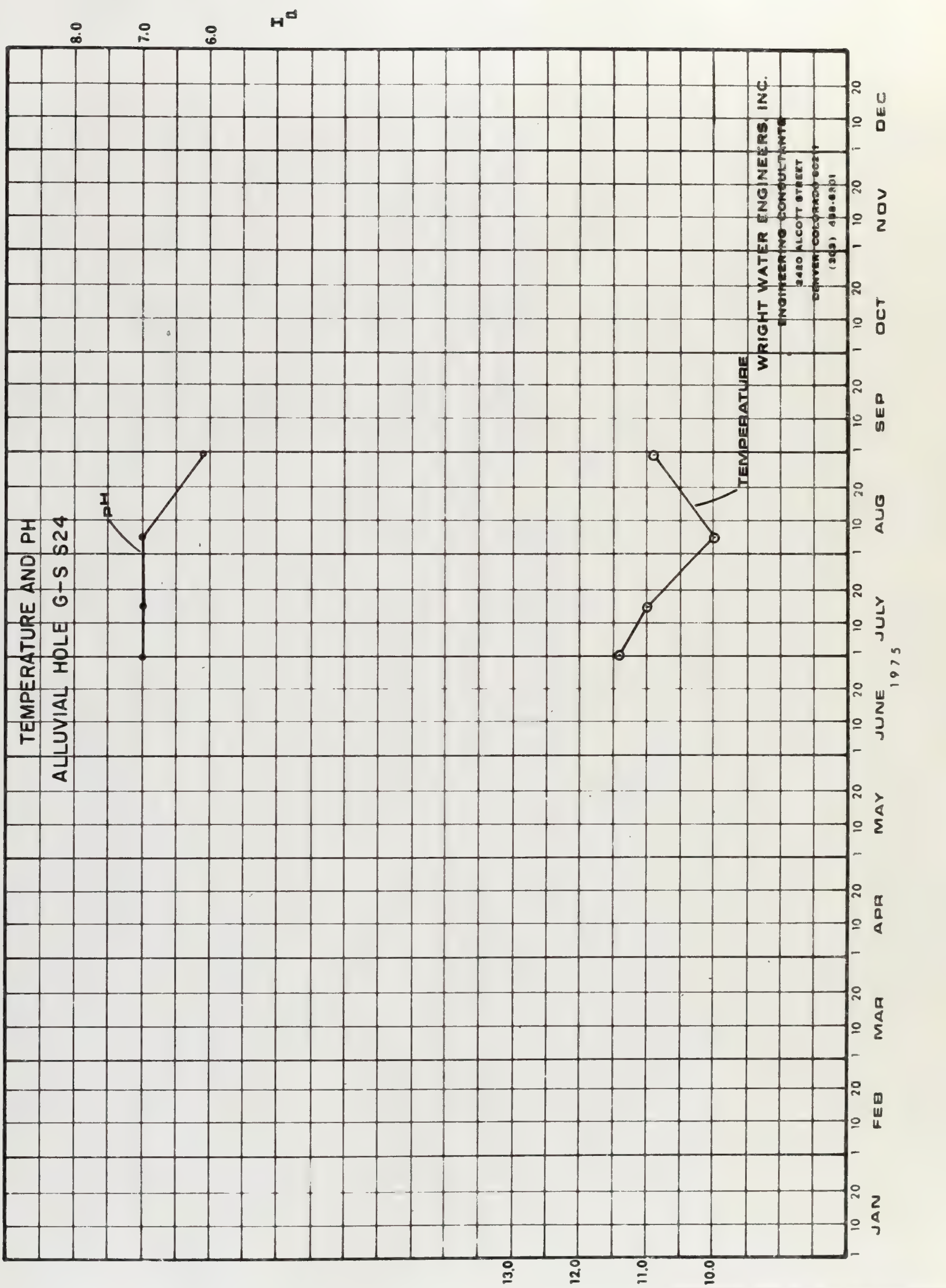

TEMPERATURE AND PH
ALLUVIAL HOLE G-S S24
pH
8.0
7.0
6.0
pH
TEMPERATURE
13.0
12.0
11.0
10.0
TEMPERATURE °C
JAN
FEB
MAR
APR
MAY
JUNE
JULY
AUG
SEP
OCT
NOV
DEC
1 10 20
1975
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-36

SECTION 1.2.4

1.2.4 DEEP AQUIFER DRILLING PROGRAM

A total of 13 core holes plus four monitor holes and four large diameter pump holes drilled by RBOSP have been discussed in the previous Quarterly Reports No. 2 and No. 3.

Drilling of G-S M5, located in the SW¼, NW¼, SW¼, Section 8, T1S, R98W, began on June 26, 1975 and reached a total depth of 907 feet on June 30, 1975. Electric and density logs were run on the same day. The conversion to a monitor hole was completed on July 1, 1975.

G-S M5 was drilled to provide information about the subsurface hydrology of the upper most aquifer system, and for ongoing water quality sampling and water level monitoring. Hydrologic data collected during the drilling included water production, water quality and electric logging information. Water production and quality were referenced to drilling depth by a drilling time log.

Air rotary equipment was used to drill G-S M5. Air for circulation was provided by two compressors capable of 500 cfm and 600 cfs respectively. Both units are rated at 120 psi. An air mist consisting of water and soap injection was not used. An 8-3/4-inch unit bit was used to drill the first 70 feet for surface casing, and 4-3/4-inch bits were used from 70 feet down to total depth, 907 feet. A G-S M5 well cross section is shown on Figure 1.2-37.

1.2.4.1 Terms Used

The following definitions of the terms will be helpful to the reader not familiar with hydrologic reports.

1. Aquifer: A stratum or zone below ground level that contains sufficient saturated permeable material to yield significant quantities of water to wells or springs.

2. Discharge: The rate of flow from the test hole in gallons per minute (gpm).

    1 cubic foot per sec. (cfs) = 449 gpm
    1 barrel per hour (bph) = 0.70 gpm
    1 gallon per min. (gpm) = 1.43 bph
    1 barrel = 42 gallons

3. Drawdown: The decrease in the static head of water of the aquifer due to pumping.
4. Specific Capacity: The discharge from the testhole divided by the drawdown (gpm/ft.).
5. Coefficient of Permeability: The rate of flow in gallons per day through a one square foot cross-sectional area of the aquifer under a hydraulic gradient of one foot per foot (gpd/ft^2).
6. Coefficient of Transmissibility: The rate of flow in gallons per day through a vertical strip of the aquifer one foot wide extending the full saturated height of the aquifer under a hydraulic gradient of one foot per one foot (gpd/ft.)
7. Coefficient of Storage: The volume of water released or taken into storage, per unit surface area, when the head on the aquifer is changed by one unit: or the amount of water released from one square foot column of saturated aquifer, in place, when the head on this column is reduced by one foot. The coefficient of storage is referred to as the specific yield or drainable porosity for water table conditions in an aquifer.
8. Artesian Condition: The condition where the piezometric water level is higher than the top of the aquifer, that is, water pressure within a confined aquifer causes water to rise, in a test hole, above the top of the aquifer.
9. Water Table Condition: The case where the water level is equal to or lower than the top of the aquifer.

1.2.4.2 Water Production

A 6-inch Parshall flume was installed on June 29 prior to encountering significant water from G-S M5. The flume had to be installed far enough away from the rig to catch the combined runoff from both the wellhead and the blooey line. The weathered ground surface is quite permeable and an unknown quantity of the water was lost before it could reach the flume. (See Figure 1.2-38).

Water was encountered just before 280 feet. Using the rig's air, discharge tests produced approximately 3 gpm. From 309 to 311 feet and 394 to 396 feet, there was some indication that a little more water was encountered, perhaps 1 to 2 gpm total addition. Water production increased to maximum of 17 gpm after 846 feet, then remained fairly steady to about 895 feet. Water production increased again from 895 to 907 feet (TD) where a connection was attempted. During the two minutes it took to make the connection, the water level rose too high for the air compressors to eject the water from the hole and regain circulation. In order for this situation to occur, a borehole infiltration rate of about 127 gpm is necessary. This indicated initial contact with the upper most major aquifer zone determined from previous tests in Tract C-a region. Drilling was consequently halted at 907 feet as the purpose of the hole at this time is to monitor the water condition of the upper most aquifer.

1.2.4.3 Water Quality

Conductivity, pH and temperature were measured during drilling of G-S M5. (See Figures 1.2-38 and 1.2-39). Conductivity jumped to 4800 umhos/cm, then decreased to 2200 umhos/cm shortly after water was encountered. Thereafter, conductivity gradually decreased to 1400 umhos/cm at total depth. The pH remained relatively stable

RDOOP

throughout the drilling, ranging from 6.8 to 7.0. Temperature remained between 55 and 59°F until reaching the increased water producing zone at 800 feet, after which the temperature dropped to 49°F and then recovered to 50°F at total depth.

A water sample was analyzed for both standard wet chemical and spectrographic analyses. The results of the wet chemical analysis are shown in Table 1.2-8.

1.2.4.4 Geophysical Logs

After drilling of G-S M5, geophysical logs were run. An electric sp-resistivity log was run between a depth of 254 feet, the fluid level, and 903 feet. A Gamma-ray-density log was run from total depth, 907 feet, to a depth of 50 feet where the surface casing ended.

RBOSP PRO

TABLE 1.2 - 8

WATER QUALITY ANALYSIS
DRILLING G-5 M5

SAMPLES

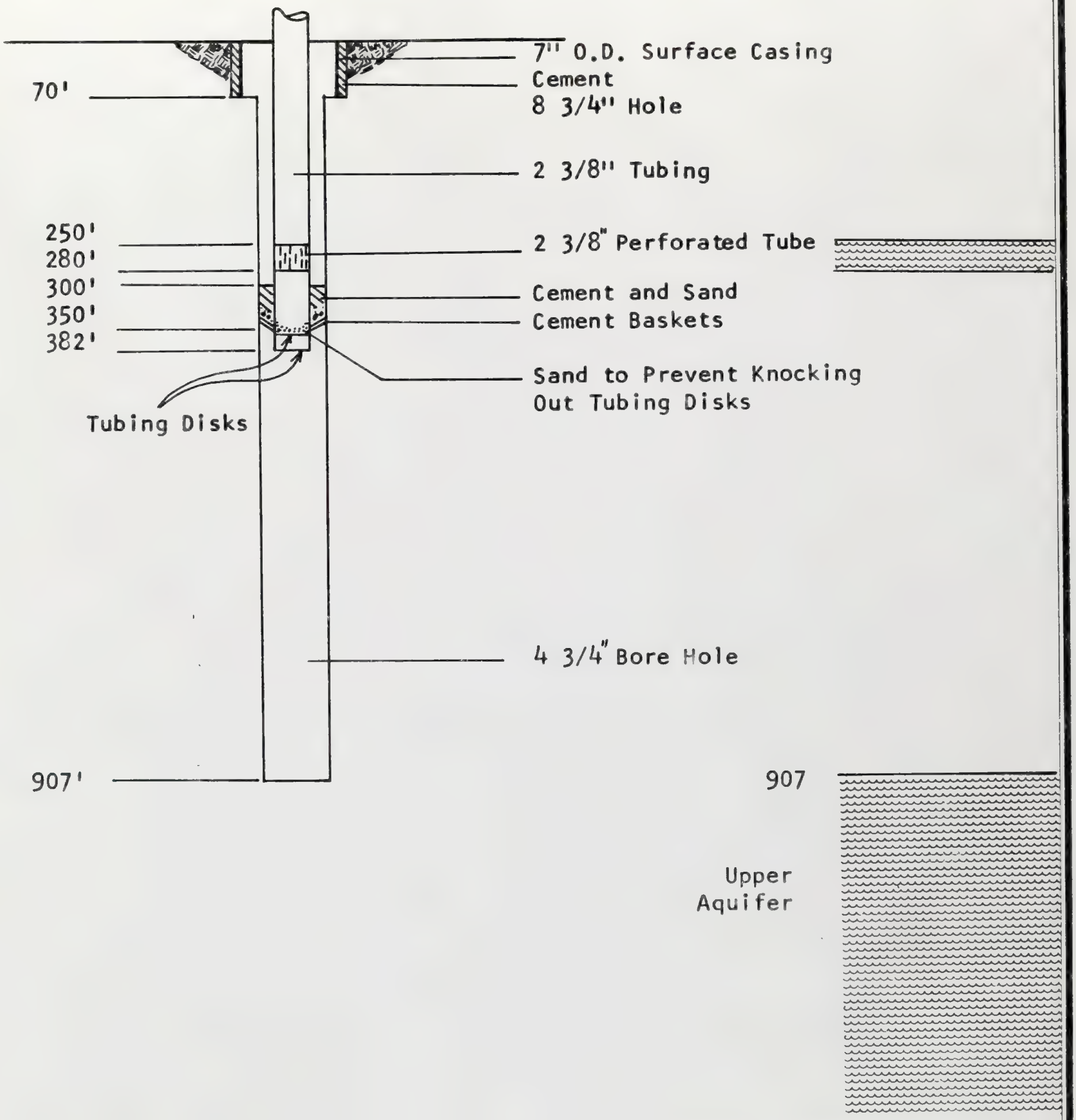
DATE		62775		71675
DEPTH		285.00		236.39
TEMP. (°F)		58.7		53.6
LAB NUMBER		2304		1351
METHOD		1		3
AQUIF. LOC.		SA		SA

STANDARD WET CHEMICAL ANALYSIS (PPM)

ALUMINUM		0.0		0.0
AMMONIA		0.0		0.0
ARSENIC	<	0.010	<	0.010
BICARBONATE		460.000		450.000
CADMIUM	<	0.010	<	0.010
CALCIUM		29.000		28.000
CARBONATE		18.000		10.000
CHLORIDE		38.000		23.000
CHROMIUM	<	0.010	<	0.010
COPPER	<	0.010	<	0.100
FLUORIDE		0.400		0.300
HYDROXIDE		0.0		0.0
IRON		7.100		16.900
LEAD		0.080		0.300
MAGNESIUM		23.000		62.000
MERCURY	<	0.002	<	0.002
NITRATE		0.200		0.300
PHOSPHATE	<	0.100	<	0.100
POTASSIUM		0.0		0.0
SELENIUM	<	0.010	<	0.010
SILICONE DIOXIDE		22.000		9.200
SODIUM		690.000		780.000
SULFATE		1100.000		1520.000
SULFIDE		0.0		0.0
ZINC	<	0.100		1.100
GROSS ALPHA		0.0		3.900
GROSS BETA		0.0		44.000
HARDNESS		170.000		325.000
pH		7.000		6.900
CONDUCTANCE		3420.000		3300.000
DISSOLVED SOLIDS		2150.000		2670.000
MANGANESE		0.080		0.900
ALKALINITY		390.000		370.000
CYANIDE	<	0.010	<	0.010
BORON		0.700		0.200
BARIUM	<	1.000	<	1.000
SILVER	<	0.010	<	0.010
NICKEL		0.200		0.060
LITHIUM		0.0		0.0
TOC		0.0		0.0

RBOSP

G-S M5 CROSS SECTION


7" O.D. Surface Casing
Cement
8 3/4" Hole
70'
2 3/8" Tubing
250'
280'
300'
350'
382'
2 3/8" Perforated Tube
Cement and Sand
Cement Baskets
Sand to Prevent Knocking Out Tubing Disks
Tubing Disks
4 3/4" Bore Hole
907'
907
Upper Aquifer

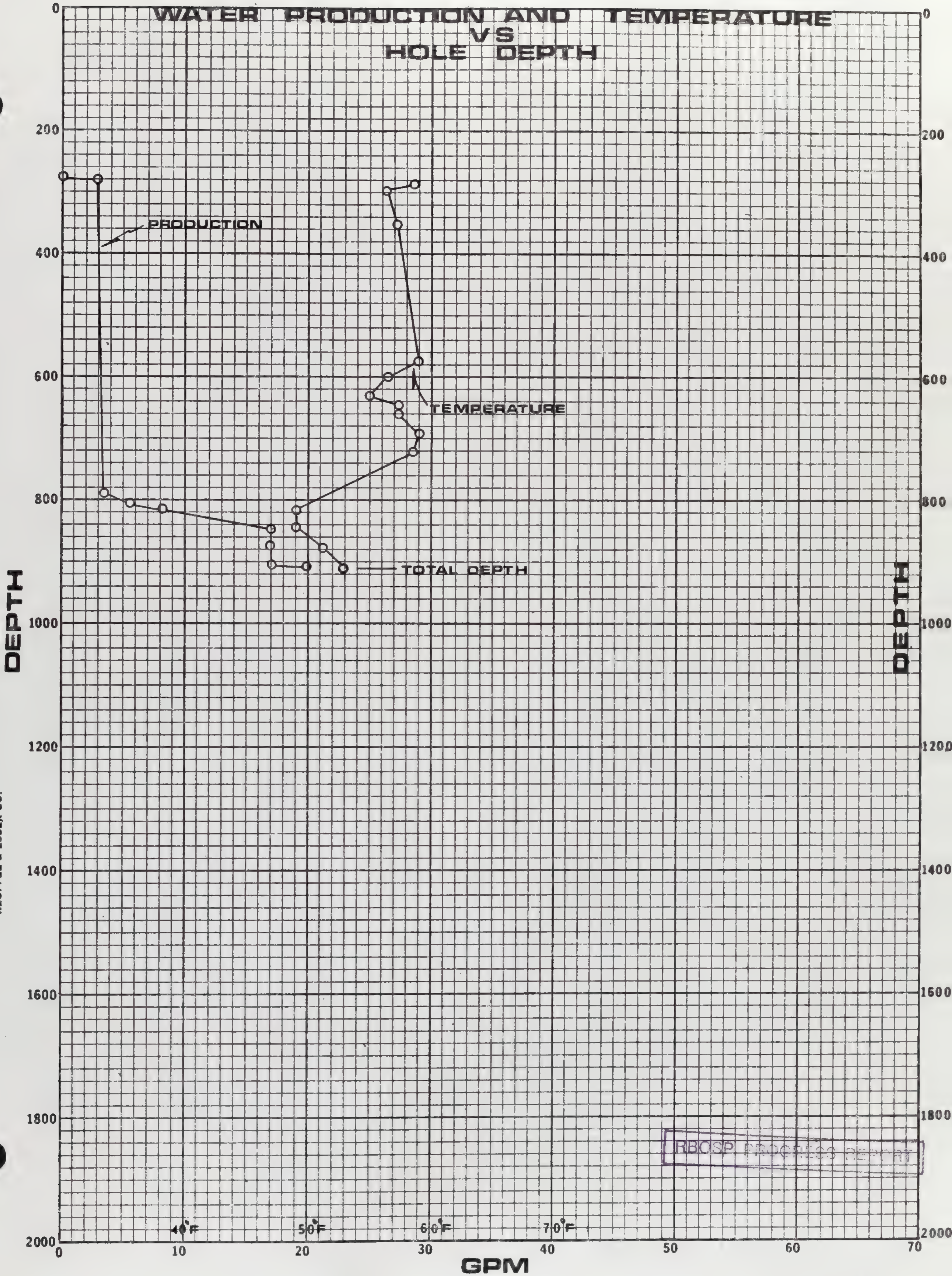
VERTICAL SCALE 1" – 200'
HORIZONTAL SCALE 1" – 1'0"

RIO BLANCO
OIL SHALE PROJECT

HOLE G-S M5 DEPTH 907
JULY, 1975

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211

FIGURE 1.2-37



KEUFFEL & ESSER CO.

FIGURE 1.2-38

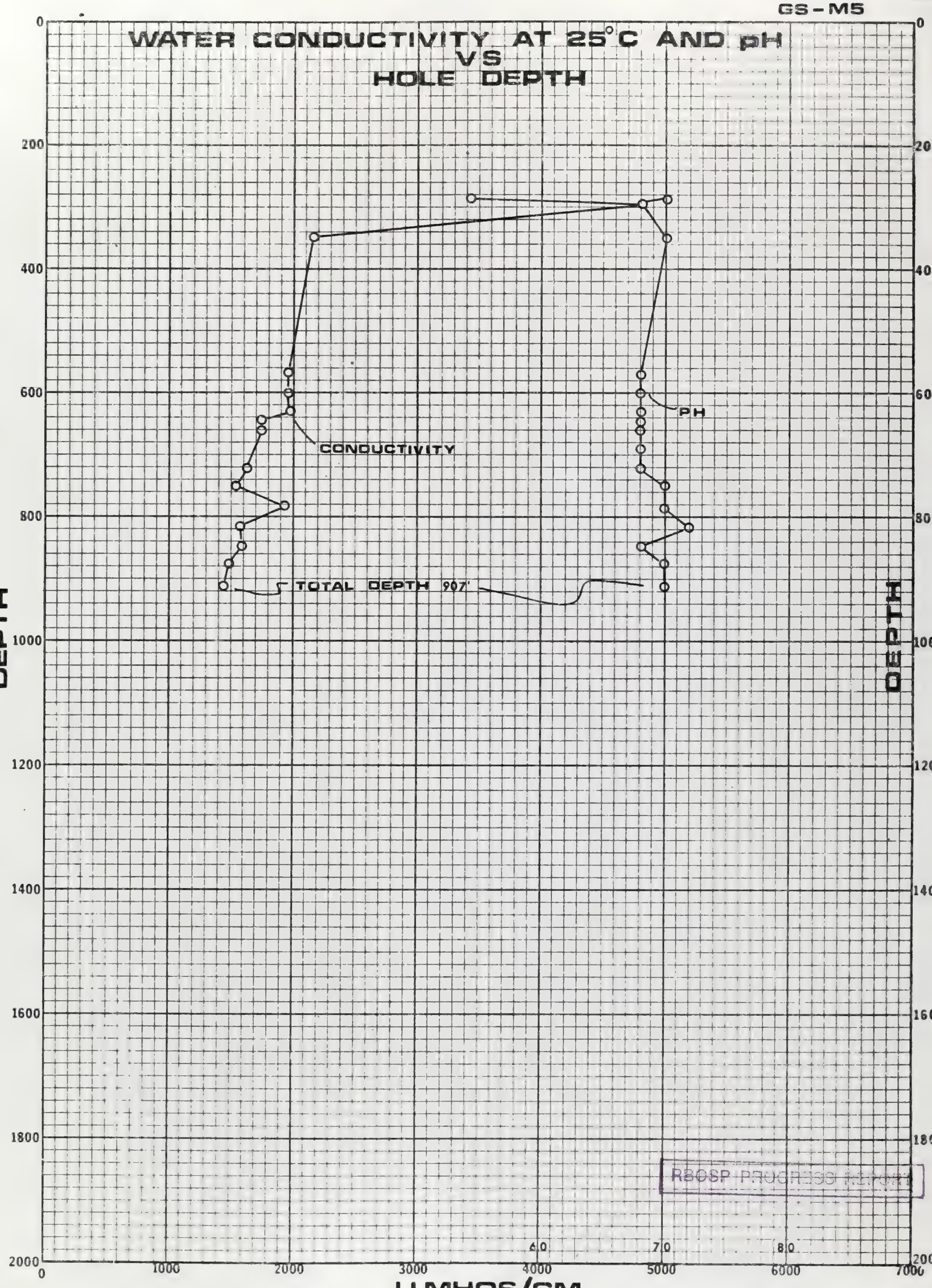

WATER CONDUCTIVITY AT 25°C AND pH
VS
HOLE DEPTH
0
200
400
600
800
1000
1200
1400
1600
1800
2000
DEPTH
PH
CONDUCTIVITY
TOTAL DEPTH 907'
6.0
7.0
8.0
0
1000
2000
3000
4000
5000
6000
7000
μ MHOS/CM

FIGURE 1.2-39

1.2.5 DEEP AQUIFER COMPLETION PROGRAM

The completion of 34 holes including the pre-lease holes are discussed in Progress Report #2. The general construction of the monitor well G-S M5 is given in Figure 1.2-37. However, the completion procedure as approved by the Oil Shale Supervisor allows monitoring of the shallowest and is as follows: a 2-3/8-inch tubing, perforated from 250 feet to 280 feet, to monitor the shallowest aquifer that has two tubing disks welded to seal the bottom annulus, was run down the hole and cemented. This completion procedure allows for conversion of the hole for monitoring water from the major "upper" aquifer zone. This can be done by sealing off the perforations from 250 to 280 feet with cement under pressure. Residual cement and sand overlying the upper disk can be cleaned using a 1-inch or smaller pipe and water circulation. Then the tubing disks can be knocked out and the hole can be cleaned using circulation.

A bailing test was conducted on July 16, 1975 to make sure that the water bearing zone was open to the well. The static water level was measured first, then five gallons of water were bailed out of the hole with a stainless steel sampler which holds slightly more than 1/2 gallon. The static water level was measured again and only a slight change was noted. Five gallons of water is enough to lower the water level inside 2-3/8-inch tubing by 30 feet with no recharge. Therefore, it was determined that hydrologic connection with the aquifer was achieved.

A water sample was taken after the conclusion of the bailing test and entered into the sampling and monitoring program being conducted by Wright Water Engineers, Inc. for the Rio Blanco Oil Shale Project. (See Table 1.2-8). Pumping tests were not conducted on G-S M5.

SECTION 1.2.5

TABLE 1.2-9

DRILL HOLE COMPLETION SUMMARY

Thirty On-Tract Holes

Drill Hole	Completion	Drill Hole	Completion
G-S 1	U & L	Am 4	P & A
G-S 2-3	U & L	CE-701	Upper Aquifer Pump Test
G-S 4-5*	U & L*	CE-702	U & L
G-S 6	U & L	CE-703	P & A
G-S 7	P & A	CE-705-A	Upper Aquifer Pump Test
G-S 8	Lower Aquifer Only	CE-707	U & L
G-S 9	U & L	CE-708	U & L
G-S 10	U & L	CE-709	U & L
G-S 11	U & L	TO 1	U & L
G-S 12*	U & L*	TO 2	U & L
G-S 13	U & L	TO 3	U & L
G-S 14	P & A	G-S D16	Upper Aquifer Pump Test
G-S 15	U & L	G-S D17	Upper Aquifer Pump Test
Am 2-A	U & L	G-S D18	Upper Aquifer Pump Test
Am 3	U & L	G-S D19	Upper Aquifer Pump Test

Five Off-Tract Holes

Drill Hole	Completion
G-S M1	U & L
G-S M2	U & L
G-S M3	U & L
G-S M4	U & L
G-S M5	SA

Totals

Completions in Upper and Lower Aquifers	22
Completions in Upper Aquifer Only	4
Completions in Lower Aquifer Only	5
Holes Plugged and Abandoned	4
Total Number of Holes	35

Am = Amoco Production Company
CE = Cameron Engineers, Inc.
G-S = Gulf-Standard (Indiana)

TO = The Oil Shale Company
U & L = Upper & Lower Aquifer Completions
P & A = Plugged and Abandoned
SA = Shallowest aquifer

* Holes Temporarily Modified for Upper Aquifer Pump Testing

SECTION 1.2.6

1.2.6 UPPER AND LOWER AQUIFER PUMPING TESTS

During the period starting December, 1974 and ending June, 1975, four lower aquifer and four upper aquifer pumping tests were conducted. The purpose of these pumping tests were to determine aquifer characteristics and water quality on a areal basis. Some of the aquifer characteristics, including transmissivity and artesian coefficients of storage, were discussed in the RBOSP Progress Report No. 3 in Section 1.2.6. The Interpretive Text Appendix contains simplified Jacob's plots and hydrographs. The data which backs up these plots are shown in Volume 2 and 3 in the Raw Data Section.

More detailed analyses of the pumping tests are included in Section 1.2.8.6 of this report. Some of the items investigated include aquifer recharge, barrier conditions and leaky conditions.

TABLE 1.2-10
PUMPING RATES & TIMES

Pumped Hole	Date Pump Turned On	Time Pump Turned On	Date Pump Turned Off	Time Pump Turned Off	Gallons Pumped per Minute	Total Time of Pumping (Min.)
Upper Aquifer						
CE-705-A	2/26/75	1230	3/08/75	0850	72	14180
CE-705-A	3/19/75	0905	3/22/75	1405	264	4620
CE-705-A	3/25/75	0825	4/01/75	1515	259	10490
GS-4-5	5/02/75	0945	5/19/75	0715	81.3	24330
GS-12	4/02/75	1045	4/13/75	0845	64.3	15720
TO-3	1/07/75	1000	1/28/75	1310	76.7	30430
Lower Aquifer						
GS-16	2/11/75 (Step Drawdown)	0945	2/11/75	1800	151 200 250	495
GS-16	2/15/75	1300	3/09/75	1230	123	31650
GS-17	1/06/75	1600	1/11/75	0928	275	6808
GS-17	1/18/75	1300	2/03/75	0830	275	22770
GS-18	5/21/75	1030	6/05/75	1100	174	21630
GS-19	4/08/75	1100	5/05/75	0030	667	38250
GS-19	5/20/75	1000	5/26/75	0655	667	8455

1.2.7 DEEP AQUIFER MONITORING

Beginning in December 1974, the deep aquifer monitoring program was initiated. The early data consisted of measuring static water levels. In March 1975 the sampling program began. As per the RBOSP approved exploration plan, the deep aquifer monitor holes were sampled, static water levels and water quality data were collected monthly for 6 months.

The ongoing sampling program will consist of monitoring static water levels, and water temperature on a monthly basis. Water samples will be collected once every six months and sent to the lab for analysis.

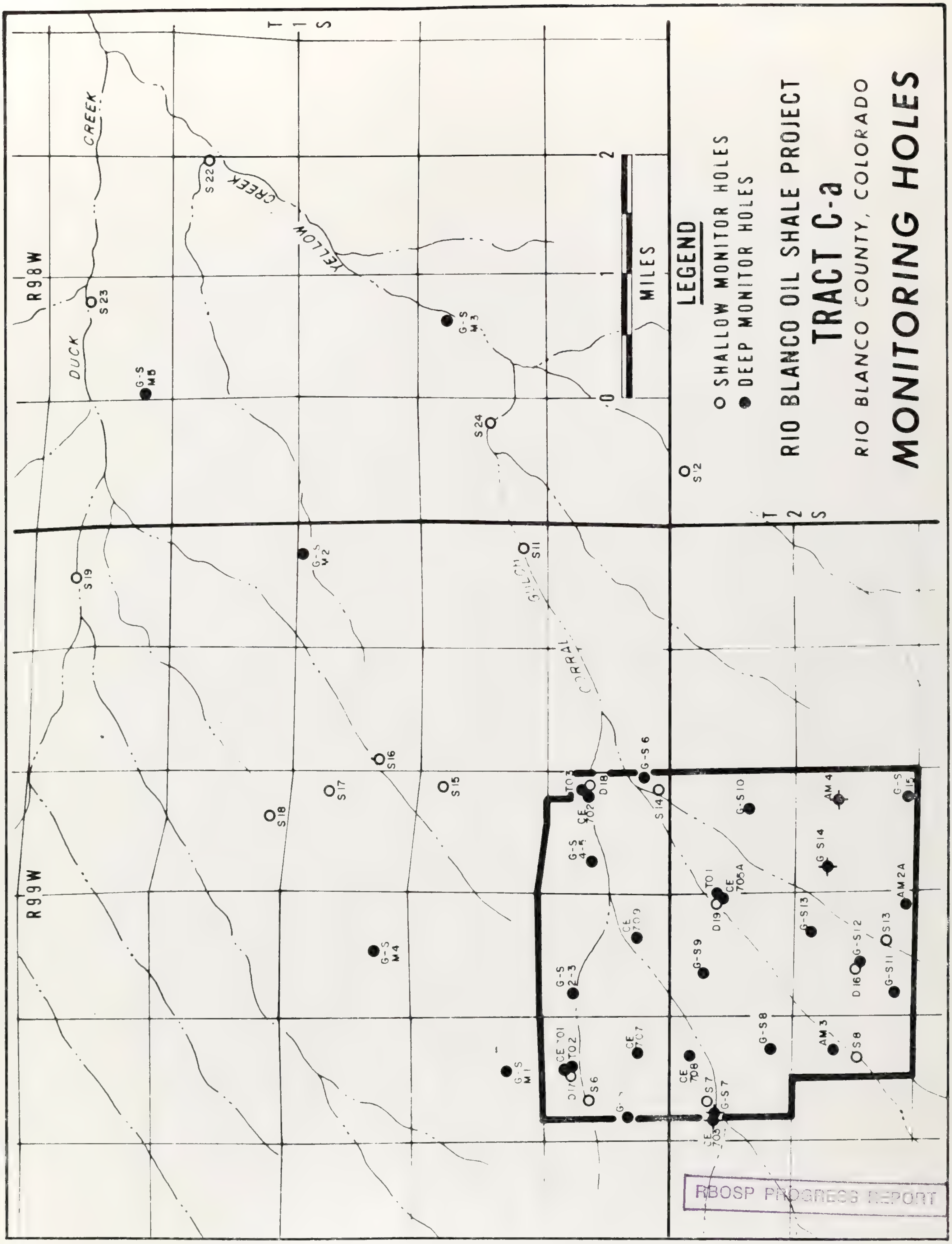
The computer tabulation presented in the Raw Data volume of this report contains the lab analysis received to date for the monitoring program only. These analyses are listed under Method 3 and Method 3A. The reason for the differentiation between the two methods is as follows:

1. Prior to the July sampling, all of the samples were collected 20 feet below the static water level.
2. The July and later samples were collected at the depth of the aquifer in the monitor holes.
3. A study of the earlier analyses indicated that some of the constituents had significantly changed when comparing them with the analyses from the drilling or pumping test program.
4. From a discussion with the Area Oil Shale Supervisors Hydrologist, it was learned that on occasion where the hydrostatic head is great enough that chemical and geophysical reactions due to air, pipe and other contaminants in the hole can significantly alter the water quality.
5. Therefore, any samples which were found to vary significantly from the norm for that particular aquifer and hole were classified as Method 3A.

RBOSP PROG

SECTION 1.2.7

Figure 1.2-40 is a map of Tract C-a and the surrounding area showing the location of the various monitoring and pumping holes. In Section 1.2.8.7 of this report, we have analyzed on the areal basis many of the chemical constituents for the upper and lower aquifers separately.



RIO BLANCO OIL SHALE PROJECT
TRACT C-a
RIO BLANCO COUNTY, COLORADO
MONITORING HOLES

LEGEND
○ SHALLOW MONITOR HOLES
● DEEP MONITOR HOLES
MILES
0
1
2
R98W
R99W
T 1 S
T 2 S
DUCK CREEK
YELLOW CREEK
CORRAL GULCH
S22
S23
G-S M5
G-S M3
S24
S12
S19
G-S M2
S11
S16
S17
S15
S18
G-S M4
G-S M1
TO3
D18
G-S 6
S14
CE 702
G-S 4-4
G-S 10
AM 4
G-S 15
G-S 14
TO1
CE 705A
D19
CE 709
AM 2A
G-S 13
G-S 9
G-S 12
S13
D16
G-S 11
G-S 2-3
G-S 8
AM 3
S8
CE 707
CE 708
CE 701
TO2
D17
S6
S7
G-S 7
CE 703

FIGURE 1.2-40

1.2.8 HYDROLOGIC PROGRAM SUMMARY AND ANALYSIS

The following is an in-depth study of the various hydrologic programs. The final point number corresponds to the point number used for the main headings elsewhere in this report, i.e., 1.2.8.1 discusses the surface water monitoring stations.

1.2.8.1 Surface Water Monitoring Stations

As of the end of September, 1975, surface water data is being collected at 11 stations in connection with the hydrology program. Four of these stations are directly connected to the drainages "flowing" on to and off of Tract C-a. Two stations are located off Tract on drainages only remotely connected with Tract C-a. A total of five stations are monitoring possible waste disposal sites.

The 11 stations have been constructed in stages. The Box Elder Gulch, Corral Gulch and the Dry Fork Stations near the west line of Tract C-a, the Corral Gulch Station east of Tract C-a, the Stake Springs Draw Station and the Yellow Creek Station near the White River were constructed during the early part of the summer 1974. The Rinky Dink Station was constructed in the fall of 1974. In the early fall 1975, the 4 stations associated with the 84 Mesa were constructed.

1.2.8.2 Surface Water Data Collection

The surface water data collection program, which began in March, 1974, is reported in Section 1.2.2 of the RBOSP Progress Reports No. 2, No. 3 and No. 4. In these reports, tables of the raw data are presented. In addition, some of the chemical constituents are discussed in detail.

Tables 1.2-11 through 1.2-14 are summary analyses of the surface water data collection program from Box Elder and Corral Gulch near the west line of Tract C-a, Corral Gulch east of Tract C-a

SECTION 1.2.8

TABLE 1.2 - 11

WATER QUALITY ANALYSIS SUMMARY, RANGE AND AVERAGE

CORRAL GULCH NEAR WEST LINE TRACT C-a USGS 09306235

Including data to: 7/15/75.

	HIGH	LOW	AVG.	# Samples
1. Alkalinity (mg/l)	421.000	291.000	321.061	33
2. Aluminum (ug/l)	220.000	220.000	220.000	1
3. Ammonia (mg/l)	0.120	0.000	0.033	8
4. Aromatics, Polycyclic				
5. Arsenic (ug/l)	23.000	1.000	5.167	30
6. Barium (ug/l)	200.000	0.000	32.857	28
7. Beryllium (ug/l)	- 5.000	- 5.000	0.000	1
8. Bicarbonate (mg/l)	513.000	355.000	391.515	33
9. Bismuth (ug/l)	-10.000	-10.000	0.000	1
10. Boron (ug/l)	130.000	30.000	92.143	28
11. Cadmium (ug/l)	5.000	0.000	0.833	30
12. Carbonate (mg/l)	0	0	0	24
13. Carbon Dioxide (mg/l)	32.000	1.200	6.869	32
14. Chloride (mg/l)	9.500	5.700	7.588	34
15. Chromium (ug/l)	- 7.000	0.000	0.000	9
16. Cobalt (ug/l)	-14.000	-14.000	0.0	1
17. COD	20.000	20.000	20.000	1
18. Coliform, Total & Fecal	0	0	0	0
19. Color (PCU)	15.000	3.000	7.875	8
20. Conductivity, Specific	1200.00	900.00	1086.47	34
21. Copper (ug/l)	14.00	0.00	4.11	28
22. Cyanide (mg/l)	0.01	0	.004	8
23. Discharge (CFS)	0.74	0.05	0.33	24
24. Discharge, Instantaneous	0.30	0.20	0.12	8
25. Dissolved Oxygen (mg/l)	11.70	5.60	8.57	30
26. Fluoride (mg/l)	1.50	0	0.33	34
27. Gallium (ug/l)	- 7.00	- 7.00	0	1
28. Germanium (ug/l)	-14.00	-14.00	0	1
29. Hardness (Ca, Mg) (mg/l)	510.00	390.00	453.23	34
30. Hardness, Non-Carbonate (mg/l)	180.00	85.00	131.79	33
31. Iron (ug/l)	280.00	0	72.94	34
32. Kjeldahl Nitrogen (mg/l)	4.2	0.25	0.99	8
33. Lead (ug/l)	230.00	0	11.14	28
34. Lithium (ug/l)	20.00	0	10.14	28
35. Magnesium (mg/l)	70.00	50.00	58.62	34
36. Manganese (ug/l)	160.00	0	11.82	33
37. Mercury (ug/l)	1.20	0	0.11	28
38. Molybdenum (ug/l)	40.00	40.00	40.00	1
39. Nickel (ug/l)	- 7.00	- 7.00	0	1
40. Nitrate (mg/l)	1.50	0.27	0.87	8
41. Nitrite (mg/l)	0.01	0.00	0.004	8
42. Nitrite Plus Nitrate (mg/l)	2.20	0.01	1.05	34
43. Nitrogen, Ammonia	0.09	0	0.02	8
44. Odor (Severity)	1.00	0	0.03	32
45. Oil & Grease (mg/l)	9.00	0	3.14	7
46. Ortho-Phosphate (mg/l)	0.28	0	0.05	34
47. Ortho-Phosphorus (mg/l)	0.09	0	0.02	34
48. Pesticides	0	0	0	0
49. pH	8.7	7.30	8.05	33
50. Phosphorus, Total (mg/l)	1.30	0.01	0.22	8
51. Potassium (mg/l)	2.8	0.60	1.43	34
52. Selenium (ug/l)	8.00	1.00	4.17	29
53. Silica (mg/l)	24.00	0.20	20.36	34
54. Silver (ug/l)	- 2.00	- 2.00	0	1
55. Sodium (mg/l)	120.00	49.00	84.73	34
56. Sodium Adsorption Ratio	2.3	1.00	1.73	34
57. Sodium ( )	34.00	19.00	28.71	34
58. Solids, Dissolved (mg/l)	874.00	663.00	734.12	33
59. Solids, Dissolved T/D	1.46	0.04	0.54	27
60. Solids, Dissolved T/Ac-Ft	1.19	0.90	.999	33
61. Solids, Suspended	2980.00	0	737.50	14
62. Strontium (ug/l)	1500.00	1500.00	1500.00	1
63. Sulfate (mg/l)	320.00	240.00	278.23	34
64. Sulfide (mg/l)	0.20	0	0.05	8
65. Temperature (°C)	27.50	0.50	13.62	38
66. Tin (ug/l)	-10.00	-10.00	0	1
67. Titanium (ug/l)	9.00	9.00	9.00	1
68. Turbidity (JTU)	450.00	2.00	88.75	8
69. Vanadium (ug/l)	-10.00	-10.00	0	1
70. Zinc (ug/l)	410.00	0	42.36	28
71. Zirconium (ug/l)	-20.00	-20.00	0	1
72. Calcium (mg/l)	99.00	62.00	84.82	34
73. Complete Element Span				
74. Radioactivity				
Gross Alpha (pci)	0	0	0	0
Radium 226*	0	0	0	0
Gross Beta	0	0	0	0
Thorium 230**				
Uranium**				
75. Total Organic Carbon (mg/l)	44.00	16.00	30.00	2
If TOC 10 mg/liter, then				
Nitrogen (Base Extraction)				
Organic Carbon, Dissolved	12.00	12.00	12.00	1
Organic Carbon, Suspended	1.20	1.20	1.20	1
Phenols				
Sulfur (Acid Extraction)				
76. Total Ortho-Phosphorus (mg/l)	0.45	0.01	0.07	8

TABLE 1.2 - 12

WATER QUALITY ANALYSIS SUMMARY, RANGE AND AVERAGE

CORRAL GULCH EAST OF TRACT C-a USGS 09306242

Including data to: 7/30/75.

	HIGH	LOW	AVG.	# SAMPLES
1. Alkalinity (mg/l)	739.00	268.00	422.34	41
2. Aluminum (ug/l)	60.00	20.00	40.00	3
3. Ammonia (mg/l)	0.35	0.0	0.08	15
4. Aromatics, Polycyclic				
5. Arsenic (ug/l)	14.00	1.00	5.05	37
6. Barium (ug/l)	120.00	0.0	20.66	35
7. Beryllium (ug/l)	-5.0	-2.00	0.0	3
8. Bicarbonate (mg/l)	901.00	327.00	515.00	41
9. Bismuth (ug/l)	-9.00	-5.00	0.0	3
10. Boron (ug/l)	670.00	60.00	177.71	35
11. Cadmium (ug/l)	-60.00	0.0	0.62	37
12. Carbonate (mg/l)	0.0	0.0	0.0	32
13. Carbon Dioxide (mg/l)	65.00	0.90	11.88	41
14. Chloride (mg/l)	19.00	5.90	9.73	41
15. Chromium (ug/l)	10.00	0.0	0.62	16
16. Cobalt (ug/l)	-13.00	-5.00	0.0	3
17. COD	94.00	11.00	45.67	3
18. Coliform, Total & Fecal	0.0	0.0	0.0	1
19. Color (PVC)	17.00	0.0	5.80	15
20. Conductivity, Specific	1725.00	797.00	1243.10	41
21. Copper (ug/l)	13.00	0.0	3.00	35
22. Cyanide (mg/l)	0.02	0.0	0.005	15
23. Discharge (CFS)	2.10	0.20	0.87	20
24. Discharge, Instantaneous	3.10	0.32	0.89	15
25. Dissolved Oxygen (mg/l)	13.00	4.80	8.12	40
26. Fluoride (mg/l)	10.00	0.20	0.92	41
27. Gallium (ug/l)	-6.00	-2.00	0.0	3
28. Germanium (ug/l)	-13.00	-6.00	0.0	3
29. Hardness (Ca, Mg) (mg/l)	520.00	360.00	462.44	41
30. Hardness, Non-Carbonate (mg/l)	140.00	0.0	70.41	41
31. Iron (ug/l)	240.00	0.0	51.10	41
32. Kjeldahl Nitrogen (mg/l)	2.40	0.14	0.68	15
33. Lead (ug/l)	18.00	0.0	3.20	35
34. Lithium (ug/l)	40.00	0.0	11.23	35
35. Magnesium (mg/l)	71.00	45.00	61.44	41
36. Manganese (ug/l)	70.00	0.0	19.83	41
37. Mercury (ug/l)	1.30	0.0	0.07	36
38 Molybdenum (ug/l)	35.00	26.00	30.33	3
39. Nickel (ug/l)	-6.00	-4.00	0.0	3
40. Nitrate (mg/l)	3.00	1.10	1.65	15
41. Nitrite (mg/l)	0.10	0.0	0.02	15
42 Nitrite Plus Nitrate (mg/l)	2.00	0.02	0.51	41
43. Nitrogen, Ammonia	0.27	0.0	0.06	15
44 Odor (Severity)	3.00	0.0	0.21	42
45. Oil & Grease (mg/l)	10.00	0.0	3.33	15
46. Ortho-Phosphate (mg/l)	0.40	0.0	0.09	41
47. Ortho-Phosphorus (mg/l)	0.13	0.0	0.03	41
48. Pesticides	0.0	0.0	0.0	2
49. pH	8.90	7.10	7.91	41
50. Phosphorus, Total (mg/l)	0.60	0.10	0.19	15
51 Potassium (mg/l)	3.00	0.70	1.69	41
52 Selenium (ug/l)	8.00	1.00	3.17	36
53 Silica (mg/l)	24.00	13.00	20.88	41
54 Silver (ug/l)	-2.00	0.0	0.0	3
55 Sodium (mg/l)	300.00	51.00	121.54	41
56. Sodium Adsorption Ratio	6.80	1.20	2.49	41
57. Sodium ( )	64.00	24.00	35.44	41
58. Solids, Dissolved (mg/l)	1140.00	522.00	835.54	41
59. Solids, Dissolved T/D	8.54	0.47	1.99	35
60. Solids, Dissolved T/Ac-Ft	1.55	0.71	1.14	41
61. Solids, Suspended	0.0	0.0	0.0	0
62. Strontium (ug/l)	2000.00	1300.00	1633.33	3
63. Sulfate (mg/l)	360.00	160.00	278.78	41
64. Sulfide (mg/l)	0.80	0.00	0.15	15
65. Temperature (°C)	19.00	6.00	11.79	41
66. Tin (ug/l)	-9.00	-5.00	0.00	3
67. Titanium (ug/l)	-6.00	-4.00	0.0	3
68. Turbidity JTU)	1000.00	1.0	143.27	15
69. Vanadium (ug/l)	-6.00	3.00	2.33	3
70. Zinc (ug/l)	100.00	0.0	22.97	35
71. Zirconium (ug/l)	-20.00	-9.00	0.0	3
72. Calcium (mg/l)	110.00	55.00	83.83	41
73. Complete Element Span				
74. Radioactivity				
Gross Alpha (pci)	-12.00	-10.00	0.0	2
Radium 226*	0.07	0.07	0.07	1
Gross Beta	-3.10	-2.90	0.0	2
Thorium 230**				
Uranium**				
75 Total Organic Carbon (mg/l)	15.00	9.80	11.60	3
If TOC >10 mg/liter, then				
Nitrogen (Base Extraction)				
Organic Carbon, Dissolved	9.70	9.70	9.70	1
Organic Carbon, Suspended	8.70	8.70	8.70	1
Phenols				
Sulfur (Acid Extraction)				
76. Total Ortho-Phosphorous (mg/l	0.58	0.01	0.08	15

TABLE 1.2 - 13

WATER QUALITY ANALYSIS SUMMARY, RANGE AND AVERAGE

YELLOW CREEK NEAR WHITE RIVER, USGS 09306255

Including data to: 8/14/75

	HIGH	LOW	AVG.	# SAMPLES
1. Alkalinity (mg/l)	1580.00	894.00	1358.74	28
2. Aluminum (ug/l)	150.00	90.00	120.00	2
3. Ammonia (mg/l)	0.52	0.0	0.17	18
4. Aromatics, Polycyclic				
5. Arsenic (ug/l)	9.00	0.0	4.58	26
6. Barium (ug/l)	400.00	0.0	170.40	25
7. Beryllium (ug/l)	-4.00	-4.00	0.0	2
8. Bicarbonate (mg/l)	1930.00	596.00	1408.54	28
9. Bismuth (ug/l)	-20.00	-15.00	0.0	2
10. Boron (ug/l)	880.00	230.00	640.80	25
11. Cadmium (ug/l)	-170.00	0.0	0.56	25
12. Carbonate (mg/l)	657.00	0.0	122.00	28
13. Carbon Dioxide (mg/l)	17.00	11.00	7.81	27
14. Chloride (mg/l)	140.00	93.00	102.45	29
15. Chromium (ug/l)	-20.00	0.0	0.56	18
16. Cobalt (ug/l)	-20.00	-15.00	0.0	2
17. COD	30.00	7.00	19.67	3
18. Coliform, Total & Fecal	0.0	0.0	0.0	1
19. Color (PVC)	45.00	2.00	12.28	18
20. Conductivity, Specific	4200.00	2410.00	3518.76	29
21. Copper (ug/l)	9.00	0.0	3.12	25
22. Cyanide (mg/l)	0.0	0.0	0.0	17
23. Discharge (CFS)	3.00	1.70	2.24	10
24. Discharge, Instantaneous	3.38	1.10	2.02	13
25. Dissolved Oxygen (mg/l)	11.90	6.90	9.45	28
26. Fluoride (mg/l)	2.60	1.20	2.06	28
27. Gallium (ug/l)	-8.00	-5.00	0.0	2
28. Germanium (ug/l)	-20.00	-20.00	0.0	2
29. Hardness (Ca, Mg) (mg/l)	670.00	420.00	543.79	29
30. Hardness, Non-Carbonate (mg/l)	0.0	0.0	0.0	28
31. Iron (ug/l)	660.00	10.00	70.17	29
32. Kjeldahl Nitrogen (mg/l)	2.60	0.17	0.86	17
33. Lead (ug/l)	-20.00	0.00	2.80	25
34. Lithium (ug/l)	180.00	80.00	144.40	25
35. Magnesium (mg/l)	140.00	0.0	108.00	29
36. Manganese (ug/l)	250.00	0.0	23.83	29
37. Mercury (ug/l)	0.90	0.0	0.06	26
38. Molybdenum (ug/l)	30.00	16.00	23.00	2
39. Nickel (ug/l)	-15.00	-10.00	0.0	2
40. Nitrate (mg/l)	2.7	0.01	1.29	17
41. Nitrite (mg/l)	0.06	0.0	0.02	17
42. Nitrite Plus Nitrate (mg/l)	2.70	0.01	1.04	29
43. Nitrogen, Ammonia	0.40	0.0	0.13	18
44. Odor (Severity)	3.00	0.00	0.26	27
45. Oil & Grease (mg/l)	17.00	0.0	3.44	16
46 Ortho-Phosphate (mg/l)	5.50	0.0	0.31	29
47. Ortho-Phosphorus (mg/l)	1.8	0.0	0.10	29
48 Pesticides	0.0	0.0	0.0	2
49 pH	9.40	8.00	8.60	28
50 Phosphorus, Total (mg/l)	0.79	0.01	0.14	17
51 Potassium (mg/l)	7.40	3.50	4.35	29
52 Selenium (ug/l)	3.00	0.0	2.00	26
53 Silica (mg/l)	20.00	0.30	10.43	29
54 Silver (ug/l)	-2.00	-2.00	0.0	2
55. Sodium (mg/l)	840.00	500.00	730.00	29
56. Sodium Adsorption Ratio	16.00	9.40	13.60	29
57. Sodium ( )	78.00	67.00	74.31	29
58. Solids, Dissolved (mg/l)	2740.00	1740.00	2396.27	28
59. Solids, Dissolved T/D	25.00	7.51	13.85	22
60. Solids, Dissolved T/Ac-Ft	3.73	2.37	3.26	28
61. Solids, Suspended	0.0	0.0	0.0	0
62. Strontium (ug/l)	3600.00	3500.00	3550.00	2
63 Sulfate (mg/l)	750.00	400.00	562.41	29
64. Sulfide (mg/l)	0.50	0.0	0.13	18
65 Temperature (°C)	26.00	0.50	12.74	29
66 Tin (ug/l)	-20.00	-15.00	0.0	2
67. Titanium (ug/l)	-12.00	-10.00	0.00	2
68. Turbidity (JTU)	400.00	3.00	109.00	18
69 Vanadium (ug/l)	-12.00	-8.00	0.0	2
70. Zinc (ug/l)	140.00	0.00	17.80	25
71 Zirconium (ug/l)	-30.00	-25.00	0.0	2
72 Calcium (mg/l)	130.00	7.0	33.83	29
73 Complete Element Span				
74 Radioactivity				
Gross Alpha (pci)	-36.00	-30.00	0.0	2
Radium 226*	0.0	0.0	0.0	0
Gross Beta	10.00	9.00	9.50	2
Thorium 230**				
Uranium**				
75 Total Organic Carbon (mg/l)	15.00	4.70	9.13	3
If TOC 10 mg/liter, then				
Nitrogen (Base Extraction)				
Organic Carbon, Dissolved	11.00	11.00	11.00	1
Organic Carbon, Suspended	0.8	0.8	0.8	1
Phenols				
Sulfur (Acid Extraction)				
76 Total Ortho-Phosphorus (mg/l)	0.43	0.0	0.12	18

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TABLE 1.2 - 14

WATER QUALITY ANALYSIS SUMMARY, RANGE AND AVERAGE

BOX ELDER GULCH WEST OF TRACT C-a USGS 09306240

Including data to: 6/25/75.

	HIGH	LOW	AVG.	# SAMPLES
1. Alkalinity (mg/l)	372.00	253.00	291.78	9
2. Aluminum (ug/l)	70.00	.0.00	70.00	1
3. Ammonia (mg/l)	0.01	0.0	.003	4
4. Aromatics, Polycyclic				
5. Arsenic (ug/l)	15.00	3.00	6.57	7
6. Barium (ug/l)	200.00	0.0	70.43	7
7. Beryllium (ug/l)	-4.00	-4.00	0.0	1
8. Bicarbonate (mg/l)	453.00	309.00	355.78	9
9. Bismuth (ug/l)	-8.00	-8.00	0.0	1
10. Boron (ug/l)	110.00	70.00	88.57	7
11. Cadmium (ug/l)	2.00	0.0	0.57	7
12. Carbonate (mg/l)	0.0	0.0	0.0	9
13. Carbon Dioxide (mg/l)	9.1	0.50	4.16	8
14. Chloride (mg/l)	8.20	5.20	5.88	9
15. Chromium (ug/l)	20.00	0.0	4.00	5
16. Cobalt (ug/l)	-10.00	-10.00	0.0	1
17. COD	22.00	22.00	22.00	1
18. Coliform, Total & Fecal	0.0	0.0	0.0	0
19. Color (PCU)	17.00	2.00	9.25	4
20. Conductivity, Specific	1160.00	772.00	871.33	9
21. Copper (ug/l)	22.00	1.00	6.29	7
22. Cyanide (mg/l)	0.01	0.0	.005	4
23. Discharge (CFS)	2.60	0.70	1.81	6
24. Discharge, Instantaneous	0.55	0.49	0.52	2
25. Dissolved Oxygen (mg/l)	9.80	5.50	7.89	9
26. Fluoride (mg/l)	0.70	0.30	0.40	9
27. Gallium (ug/l)	-5.00	-5.00	0.0	1
28. Germanium (ug/l)	-10.00	-10.00	0.0	1
29. Hardness (Ca, Mg) (mg/l)	460.00	330.00	374.44	9
30. Hardness, Non-Carbonate (mg/l)	96.00	67.00	81.78	9
31. Iron (ug/l)	500.00	0.0	83.33	9
32. Kjeldahl Nitrogen (mg/l)	2.70	0.31	1.01	4
33. Lead (ug/l)	11.00	1.00	2.71	7
34. Lithium (ug/l)	20.00	10.00	15.71	7
35. Magnesium (mg/l)	61.00	44.00	48.00	9
36. Manganese (ug/l)	20.00	0.0	5.56	9
37. Mercury (ug/l)	0.20	0.0	0.033	6
38. Molybdenum (ug/l)	35.00	35.00	35.00	1
39. Nickel (ug/l)	-5.00	-5.00	0.0	1
40. Nitrate (mg/l)	1.00	0.88	0.93	4
41. Nitrite (mg/l)	0.01	0.0	.005	4
42. Nitrite Plus Nitrate (mg/l)	1.50	0.75	1.09	9
43. Nitrogen, Ammonia	0.01	0.0	0.003	4
44. Odor (Severity)	0.0	0.0	0.0	9
45. Oil & Grease (mg/l)	3.00	1.00	2.00	4
46. Ortho-Phosphate (mg/l)	0.09	0.0	0.5	9
47. Ortho-Phosphorus (mg/l)	0.03	0.0	0.02	9
48. Pesticides	0.0	0.0	0.0	0
49. pH	9.00	9.00	8.30	8
50. Phosphorus, Total (mg/l)	0.41	0.03	0.15	4
51. Potassium (mg/l)	1.50	0.70	1.02	9
52. Selenium (ug/l)	6.00	3.00	4.43	7
53. Silica (mg/l)	24.00	21.00	22.78	9
54. Silver (ug/l)	-1.00	-1.00	0.0	1
55. Sodium (mg/l)	93.00	39.00	56.78	9
56. Sodium Adsorption Ratio	1.90	0.90	1.28	9
57. Sodium ( )	31.00	20.00	24.68	9
58. Solids, Dissolved (mg/l)	777.00	482.00	558.33	9
59. Solids, Dissolved T/D	4.10	0.69	2.38	7
60. Solids, Dissolved T/Ac-Ft	1.06	0.66	0.76	9
61. Solids, Suspended	1080.00	57.00	443.20	5
62. Strontium (ug/l)	1000.00	1000.00	1000.00	1
63. Sulfate (mg/l)	280.00	140.00	172.22	9
64. Sulfide (mg/l)	0.20	0.0	0.10	4
65. Temperature (°C)	27.50	8.50	16.50	10
66. Tin (ug/l)	-8.00	-8.00	0.0	1
67. Titanium (ug/l)	-5.00	-5.00	0.0	1
68. Turbidity (JTU)	210.00	13.00	76.25	4
69. Vanadium (ug/l)	-5.00	-5.00	0.0	1
70. Zinc (ug/l)	65.00	0.0	16.43	7
71. Zirconium (ug/l)	-16.00	-16.00	0.0	1
72. Calcium (mg/l)	86.00	57.00	70.44	9
73. Complete Element Span				
74. Radioactivity				
Gross Alpha (pci)	0.0	0.0	0.0	0
Radium 226*	0.0	0.0	0.0	0
Gross Beta	0.0	0.0	0.0	0
Thorium 230**				
Uranium**				
5 Total Organic Carbon (mg/l)	11.00	11.00	11.00	1
If TOC 10 mg/liter, then				
Nitrogen (Base Extraction)				
Organic Carbon, Dissolved	9.00	9.00	9.00	1
Organic Carbon, Suspended	0.70	0.70	0.70	1
Phenols				
Sulfur (Acid Extraction)				
76 Total Ortho-Phosphorous (mg/l)	0.04	0.01	0.02	4

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and Yellow Creek near White River. This summary shows the minimum, maximum and average values with the number of samples averaged.

A reconnaisance study of the Piceance Creek Basin has indicated that there are only four perennial streams and tributaries within the basin. They are Piceance Creek, Dry Fork of Piceance Creek, Balck Sulphur Creek, and Yellow Creek, which is perennial only along the last few miles before it reaches the White River.

The majority of the surface drainages in the Piceance Creek Basin would be classified as intermittent, that being they flow only during spring snowmelt and from precipitation of rapid thunder showers, or else flow continuously in given reaches such as Corral Gulch.

1.2.8.3 Alluvial Aquifers

The alluvial aquifers which are found along most valley bottoms have a measured thickness which ranges from 0 to 140 feet. It is reported that the width of the alluvium is generally less than 1/2 mile.

As would be anticipated, the alluvial aquifers are saturated where there are perennial streams, however, where the streams and surface drainages only have intermittent flows, the extent of saturation within the alluvial aquifers tends to be highly variable, and subject to seasonal changes.

As discussed in Section 1.2.3 of this report, the water table in the alluvium was higher during the snowmelt runoff period than at other times of the year along the major surface drainage, however, along the smaller drainages where the aquifer had been dry, it remained dry during the late spring snowmelt.

1.2.8.4 Deep Aquifer Drilling Program

RBOSP Progress Report No. 2 discussed in detail the drilling program conducted by RBOSP. In addition, data was also included from the Cameron Engineers and Amoco Drilling Programs. From this data, it was concluded that there are two aquifer systems present in the Parachute Creek Member of the Green River Formation on Tract C-a. Although somewhat variable, the upper aquifer system is generally in the vicinity of the Mahogany Zone. The lower aquifer system is also variable but generally includes the R-3 zone, however, it has been observed as low as the blue marker and as high as the R-4 zone.

Discussed in some detail in our RBOSP Progress Report No. 2 under the Drilling Program are the following:

Water Production
Water Quality
Informal Pump Tests
Geophysical Logs
Summarizing Table

1.2.8.5 Deep Aquifer Completion Program

With completion of G-S M-5 on July 16, 1975, there are a total of 35 holes on and around Tract C-a which have been completed as either dual completion monitor holes, upper aquifer pump test holes, lower aquifer pump test holes, upper aquifer monitor holes, lower aquifer monitor holes, or plugged and abandoned holes. With the exception of G-S M5 which is reported in Progress Report No. 4, the remaining hole completions are discussed in detail in RBOSP Progress Report No. 2. It should be noted that until Ocotber, 1974, holes which were drilled prior to the lease had been left open at the request of the USGS. The leaving of the holes opened allowed the waters of the two aquifers to intermingle. Generally speaking, the upper aquifer system has a higher hydrostatic head than the lower aquifer system. Therefore, the flow was generally from the upper aquifer system to the lower aquifer system.

The first holes drilled on what is now Tract C-a were begun in the fall of 1971. Prior to the drilling by RBOSP, a total of 13 holes had been drilled and and/or cored through the two aquifers. Of these 13 holes, 3 had been open to the two aquifers for a period of 3 years, 4 had been open for a period of 2 years, and 6 had been open for a period of one year. It is estimated that approximately 15,000 acre-feet of water flowed from the upper aquifer system to the lower aquifer system prior to October 1974. This compares with 145 acre-feet produced from the lower aquifer during the RBOSP pumping test program and 30 acre-feet from the upper aquifer pumping tests.

At the present time, all of the holes on and around Tract C-a have been completed in such a manner as to eliminate the communication between the two aquifer systems.

1.2.8.6 Upper and Lower Aquifer Pumping Tests

A total of 8 pumping tests were conducted between December 1974 and mid-June, 1975. Four of these tests were conducted in the upper aquifer system and 4 in the lower aquifer system. RBOSP Progress Report No. 3, Section 1.2.6 contains the Raw Data observations, simplified Jacob's plots, the transmissivity and coefficients of storage values and calculations, and the water quality data from the pumping test program.

The following discussion is a more detailed and in depth evaluation of the pumping test program. The purpose of this evaluation is to determine possible aquifer recharge, aquifer boundry conditions, and investigate any anamolous conditions that were observed. In addition, an investigation was conducted to determine the nature of the flow within the aquifer. Although this investigation was inconclusive, it appears that the flow within the aquifer during pumping is radial with linear tendencies.

During an investigation of the simplified Jacob's plots for the lower aquifer pumping, a break in slope at approximately 10,000 minutes was found to occur quite frequently. Using the Theis formula, it was calculated that this break in slope occurred when the radius of influence was on the order of 5 to 6 miles from the pumped hole. It is our opinion that this break in slope represents the intersection of the radius of influence with the Cathedral Bluffs boundary area.

The following is a discussion of the water level changes at various times during each of the 8 pumping tests. From this discussion and the corresponding figures, it was observed that there generally is an elongation of the cone of depression along the NW-SE axis. However, in the upper aquifer system, the radius of influence was generally very limited. In fact, with the exception of the pumping of G-S 12, only one distant observation hole had any measured water level change. Therefore, a limited amount of data was collected on the upper aquifer system.

Almost without exception during the pumping of any given lower aquifer hole, every observation hole had a measurable drawdown. Therefore, a great deal of data was collected on the lower aquifer system. From this data the transmissivity and the artesian coefficients of storage were calculated over the majority of Tract C-a.

Figures 1.2-41 to 1.2-44 are water level change maps during the upper aquifer pumping tests of CE 705A, G-S 4-5, G-S 12 and TO-3 respectively. Cones of depression, favored direction of flow and boundary conditions are shown in these plots.

Figure 1.2-41 is drawdown at approximately 3,000 minutes during the second upper aquifer pumping test at CE 705-A (turned on 3/19/75, turned off 3/22/75). Drawdown, as it occurred in two observation wells TO-1 and CE-709, is only in a northwest direction from the hole. The boundary conditions that exist may be due to the northwest trending faults or fractures.

Drawdown from pumping G-S 4-5 at approximately 23,000 minutes, as seen in Figure 1.2-42 only occurred in G-S 4-5. The factors that may have contributed to this are (1) the low pumping rate, and (2) natural boundary conditions that may have limited the extent of drawdown in the areas immediately around G-S 4-5. The test began on May 2, 1975 and ended on May 19, 1975.

Drawdown at approximately 13,000 minutes for the G-S 12 pumping test, as seen in Figure 1.2-43, was observed in three observation holes, AM 2-A, AM-3 and G-S 11. Drawdown was limited to an area southwest of the production well. The favored direction of flow is southwest of the production well in the direction of G-S 11. Drawdown is only seen southeast of the production well, TO-3, on the Tract. Since no observation wells exist in off-tract directions from the hole, it is impossible to determine whether drawdown occurred in those directions. In the TO-3 pumping test, leaky conditions may have limited cone development.

In viewing all of the upper aquifer pumping test drawdown cones together, it can be seen that the cone of depression from the various pumping tests do not overlap. This seems to reflect the structural geology of the area, as faulting appears to delineate barriers in the upper aquifer.

Water level change during pumping tests (Figures 1.2-45 to 1.2-56) were prepared at different pumping intervals for the lower aquifer. The aysmmetrical shapes of the cones of depression indicate some anisotropic conditions in the lower aquifer. The development of the cone of depression for each pumping test are discussed below.

Lower aquifer pumping test at G-S D16 began on Feburary 15, 1975 and finished on March 9. 1975. Figures 1.2-45 to 1.2-48 show the drawdowns at different time intervals. At approximately one day (1350 minutes) after the pump was on, G-S 12 which is located next to the pumping site, responded with a drawdown almost 5 feet, whereas G-S 13 indicated a drop of 2-1/2 feet in its static water level. A few observation holes close to the production well were affected by the test. Their drawdowns ranged from 0.2 feet to 1.6 feet, depending on the locations.

As the cone of depression continued to expand towards its maximum, during the pumping test, the cone tends to develop a more gentle slope towards the northwest section of the tract where higher transmissivity exists. At approximately 31,500 minutes after the pumping test started, all observation wells as far away as G-S M1 showed drawdowns from 3 feet to 9 feet.

Lower aquifer pumping test at G-S D17 began on January 18 and was completed by February 3, 1975. Figures 1.2-49 to 1.2-52 shows drawdown plots at various times after the first 2700 minutes of pumping. Observation hole TO-2 which is next to the pump site showed a drawdown of 34½ feet. All observation wells on the tract were generally affected by the tests with drawdowns ranging from 6½ feet at G-S 2-3 to approximately 0.5 feet at AM-2A and AM-3. The pump site is located at the northwest section of the tract and it is within the relatively higher permeability zone. The cone of depression expanded fairly evenly over the entire Tract. At the time before the pumping test was completed, drawdowns observed from all observation holes ranged from 46½ feet at TO-2 to 6 feet at AM-2A.

Pumping tests were conducted at G-S D19 during the periods of April and May. Water level changes representing the expanding cone of depression during the test period of April 8 through May 5, 1975 are shown on Figures 1.2-53 to 1.2-56. The initial cone of depression after about 1 day pumping shows a somewhat bowl-like depression centered at the G-S D19 site. There are two main anomalies affecting this symmetric cone of depression. One is the relatively rapid lowering of water level in G-S 8 and the other is a somewhat steepening of the cone of depression in the vicinity of G-S D18. The development of the cone after 8, 15 and 21 days show that these two features continue to develop and effect the cone of depression by creating a lower than expected zone that extends from G-S D19 toward G-S 8, and a relatively steep gradient is developed in the northeast section of the tract. Also apparent from these figures is the general development of a more normal Theis type logarithmic decreasing depression with distance from the pumping hole after 1400 minutes.

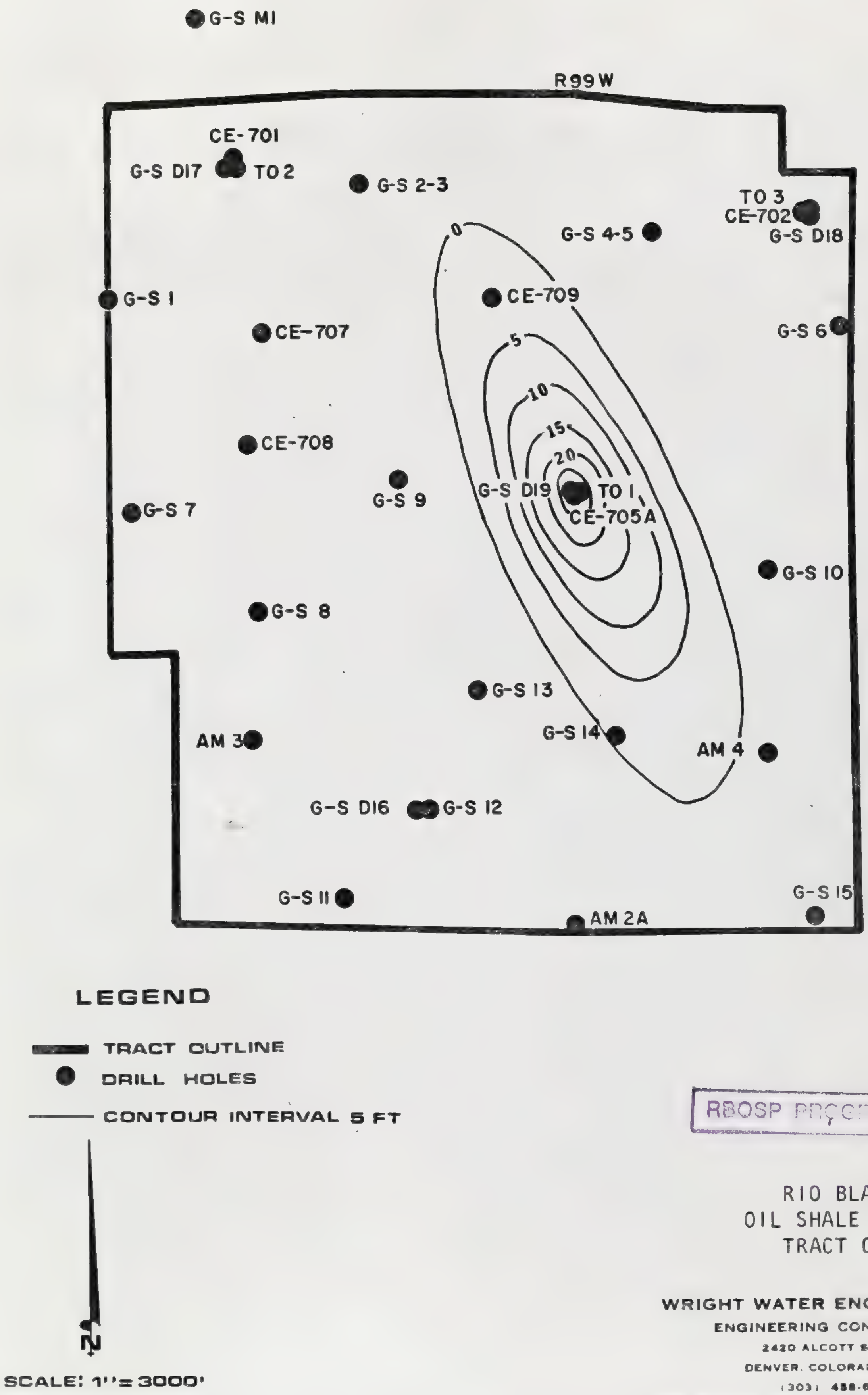
Leaky conditions between the upper and lower aquifers can be seen to exist from the pumping tests of the lower aquifer of G-S D18 and G-S D19. Figure 1.2-57 shows water level changes of the upper and lower aquifers in TO-3, CE-702, G-S 4-5 and G-S 6 during the pumping tests of G-S D18 and G-S D19. Figure 1.2-57 shows the correlation of upper and lower aquifer reaction during the pumping of the lower aquifer. The pumping of G-S D19 and then the simultaneous pumping of G-S D18 and G-S D19 caused drawdown to occur in the lower aquifer and correspondingly in the upper aquifer. The leakage condition that is postulated is due to lower aquifer water migrating upward under a greater head pressure than exists in the upper aquifer, possibly through fractures, in the vicinity of TO-3 and CE-702. Pumping of the lower aquifer results in lowering of the head pressure of the lower aquifer. This caused the system to begin to reverse itself and a water level drop in the upper aquifer since the head pressure of the upper aquifer begins to equal or becomes greater than the head pressure of the lower aquifer.

Water Quality comparison over the tract indicates a leakage condition in the vicinity of TO-3 and CE-702. The Water Quality data can be found in RBOSP Progress Report No. 4, Raw Data, Volume 1. The water of the upper aquifer in the vicinity of CE-702, TO-3 and GS-6 is much lower in quality than the general quality of the upper aquifer. One reason for higher constituent values in this area can be due to poorer quality lower aquifer water migrating upward and mixing with the upper aquifer.

An investigation was made to determine to what extent the Jacobs logarithmic drawdown plots from upper aquifer pumping tests might indicate upper aquifer leakage. Drawdown plots which were published in RBOSP Progress Report No. 3 were examined. The nature of the Jacobs method assumes compliance with the Theis formula with the further stipulation that the distance between the measuring point and the pumped well is sufficiently small and the pumping time is sufficiently large. If these conditions are met, a logarithmic drawdown plot representing leakage conditions will exhibit a flattening trend with prolonged pumping time. In reviewing the Jacob's Plots found in RBOSP Progress Report No. 3, Appendix, it is seen that after a period of time pumping, the drawdown curves begin to flatten out, rather than continuing a normal drawdown pattern. The apparent cause is that as the head pressures of the upper aquifer is reduced, the greater head pressure of the lower aquifer begins to increase the rate of leakage thereby increases until the rate of leakage and recharge equals the rate of pumping, creating a static condition. The upper aquifer at CE-705A was pumped three separate times from February through March. Response from the first two tests was limited to the vicinity of CE-705A, with the exception of CE-709. Both drawdown curves from CE-705A and TO-1 show strong flattening with time. The third test which pumped at a relatively high rate and relatively long period produced apparently a preferred direction response in CE-709 that also hinted at a leaky condition during the later phases of its response to the pumping of CE-705A. On this test TO-1 drawdown plots also indicated a leaky situation. Pumping TO-3 produced a drawdown curve that completely flattened and then increases. The increase in water level with time with a constant pumping rate has not yet been interpreted.

UPPER AQUIFER PUMPING TEST CE-705A No. 2

DRAWDOWN AT APPROX. 3000 MIN.


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
0
G-S 1
CE-709
CE-707
G-S 6
5
10
15
20
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 5 FT
N
SCALE: 1''=3000'

RBOSP PROGRESS REPORT

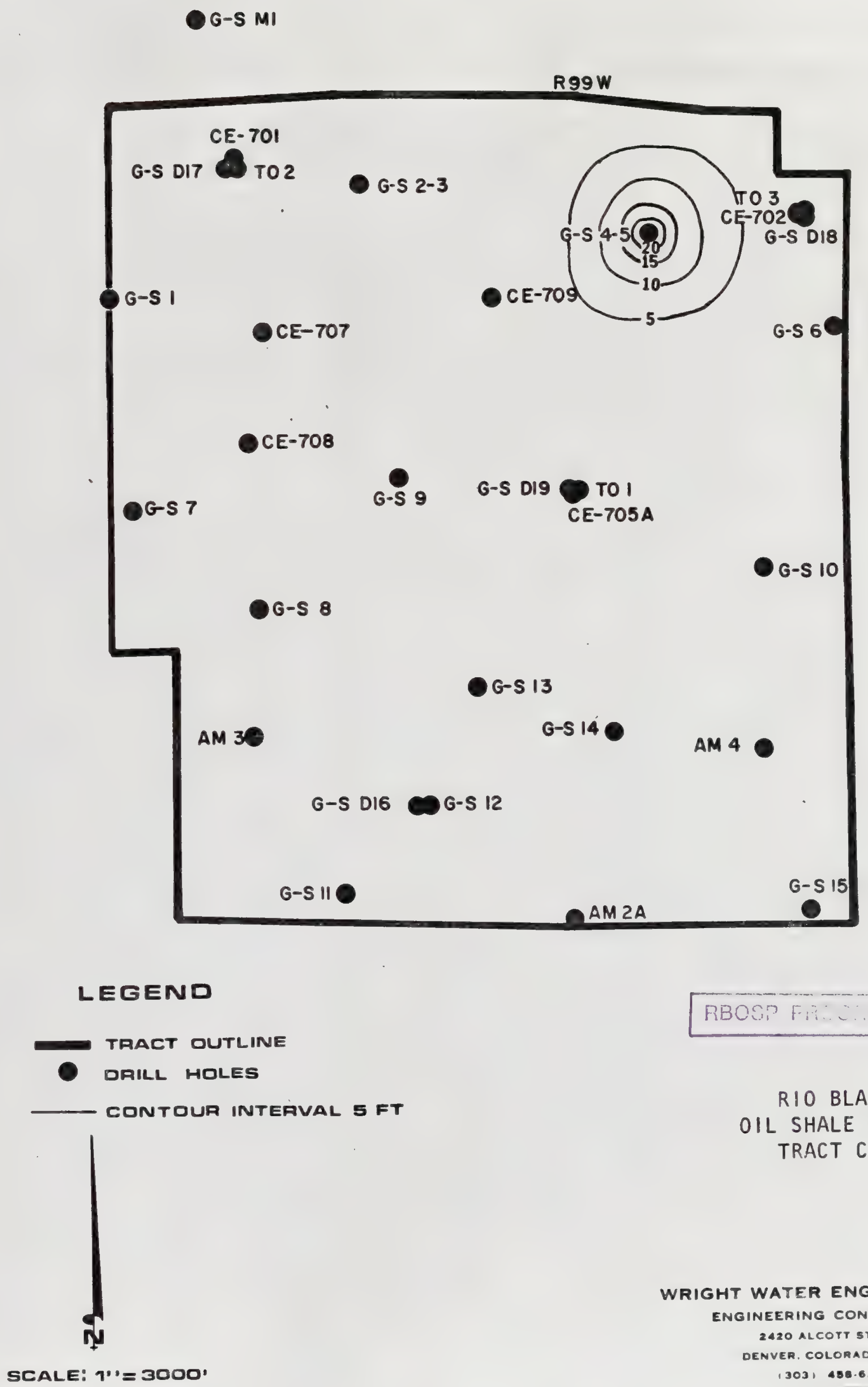
RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-41

UPPER AQUIFER PUMPING TEST G-S 4-5

DRAWDOWN AT APPROX. 23000 MIN.


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
20
15
10
5
G-S 1
CE-709
CE-707
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 5 FT
N
SCALE: 1''=3000'

RBOSP PR[illegible]

RIO BLANCO
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DENVER, COLORADO 80211
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FIGURE 1.2-42

UPPER AQUIFER PUMPING TEST G-S 12

DRAWDOWN AT APPROX. 13000 MIN.

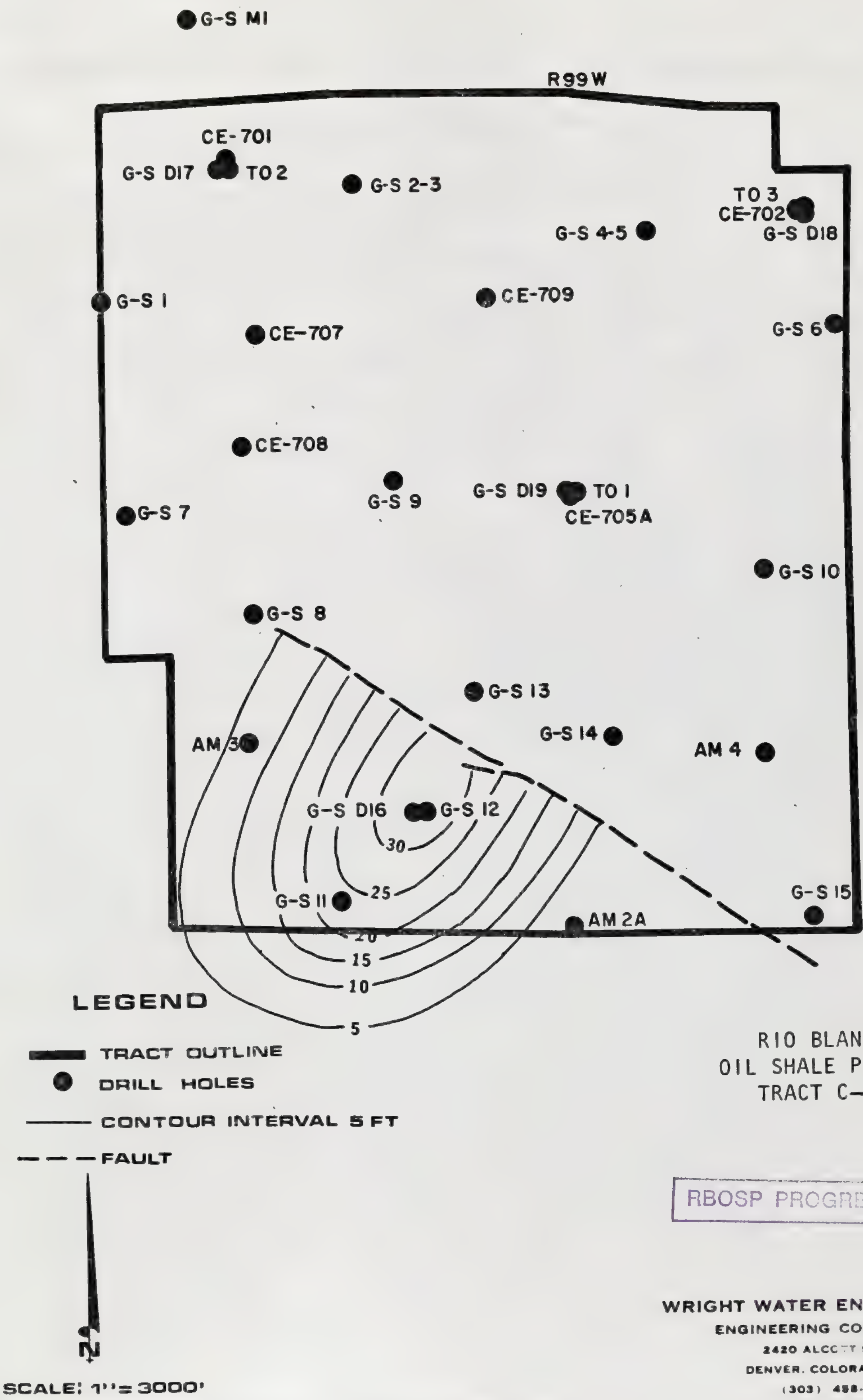
G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
30
25
G-S 11
20
15
10
5
AM 2A
G-S 15
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 5 FT
FAULT
N
SCALE: 1''=3000'

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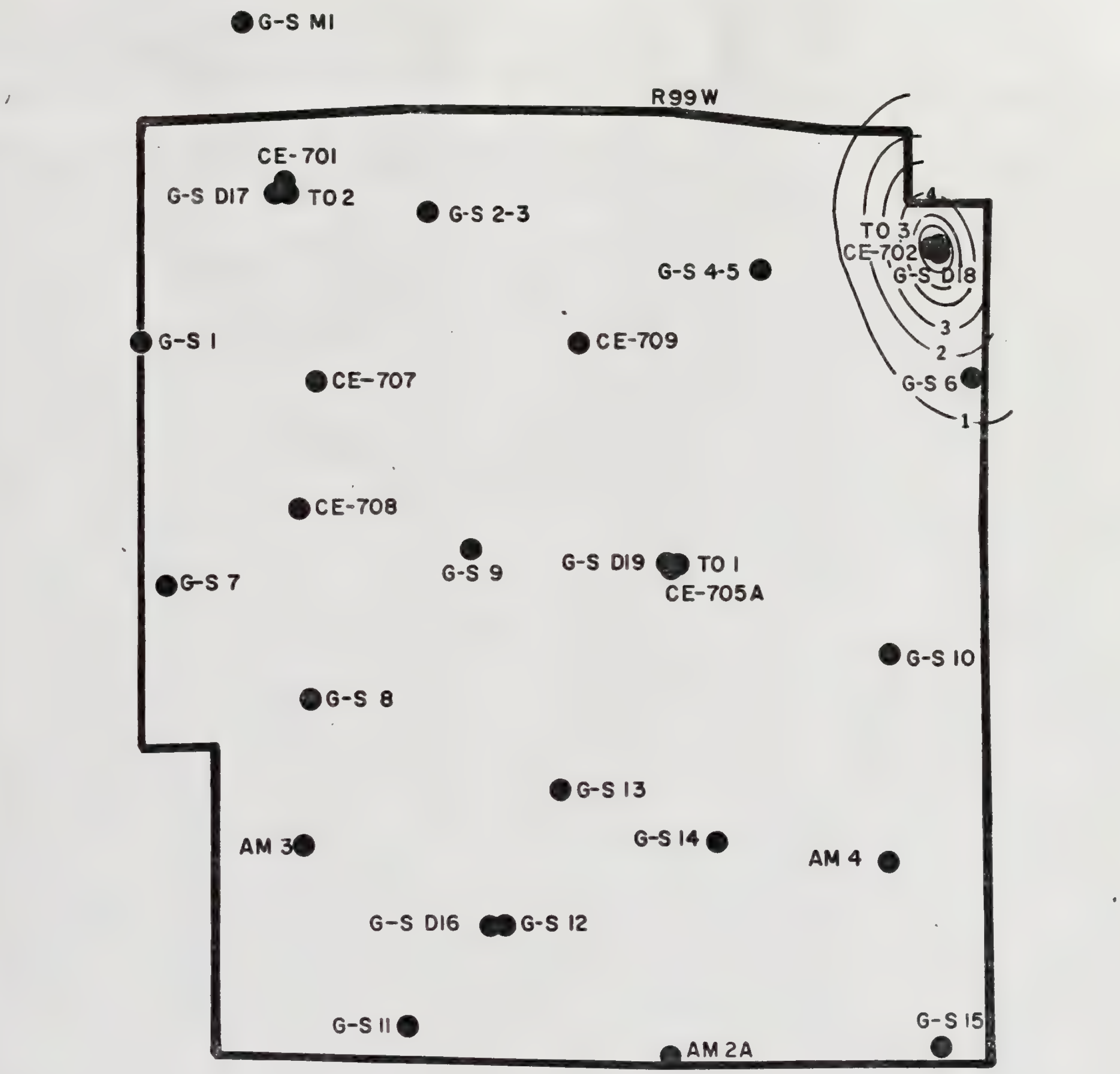
FIGURE 1.2-43

UPPER AQUIFER PUMPING TEST TO 3

DRAWDOWN AT APPROX. 1350 MIN.


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
4
3
2
1
G-S 1
CE-709
CE-707
G-S 6
CE-708
G-S 7
G-S 9
G-S D19
TO 1
CE-705A
G-S 10
G-S 8
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

—— CONTOUR INTERVAL 1 FT

SCALE: 1''=3000'

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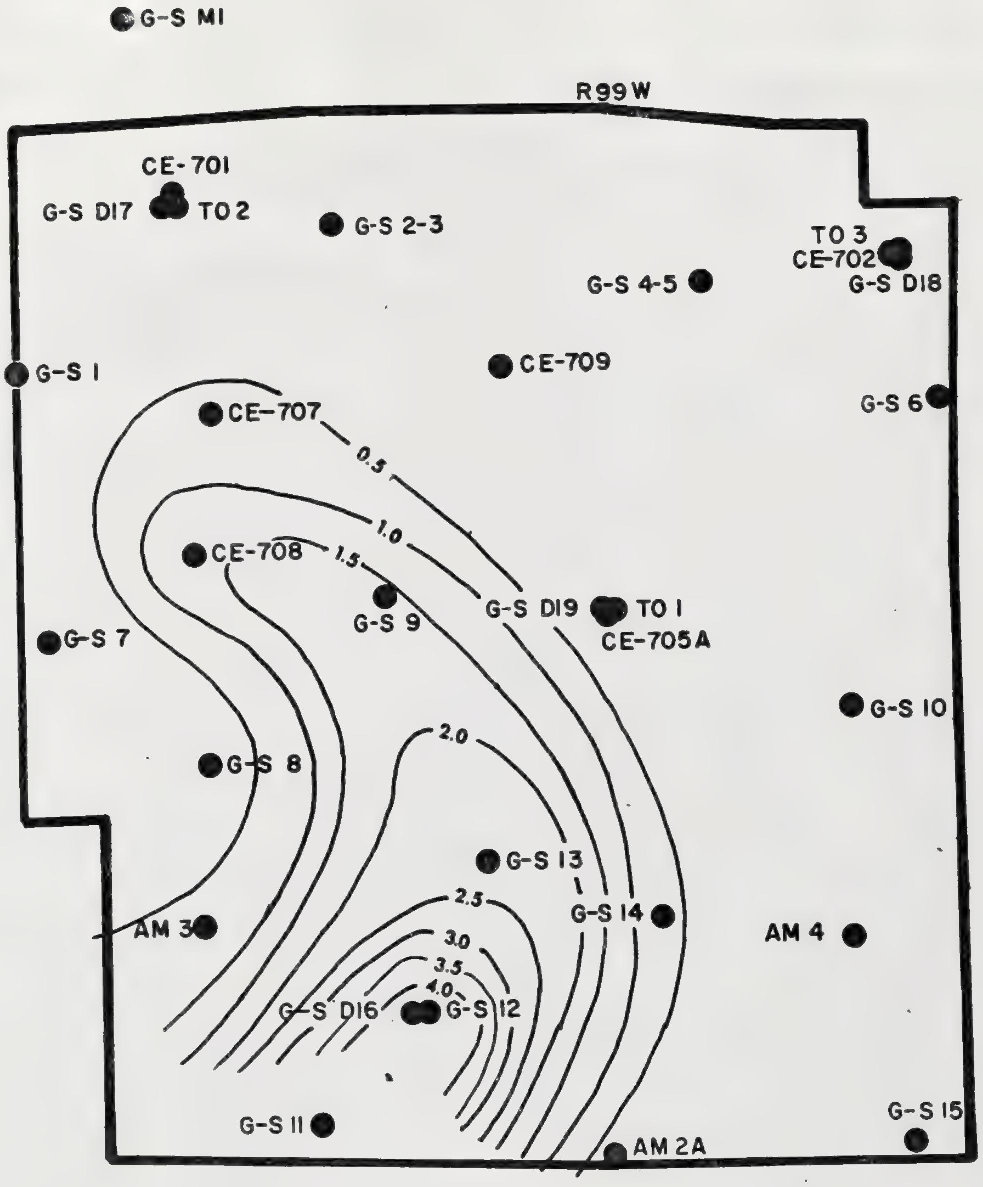
FIGURE 1.2-44

LOWER AQUIFER PUMPING TEST G-S D16
DRAWDOWN AT APPROX. 1350 MIN.


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
G-S 6
CE-707
0.5
1.0
CE-708
1.5
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
2.0
G-S 8
G-S 13
2.5
G-S 14
AM 3
AM 4
3.0
3.5
4.0
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

— CONTOUR INTERVAL 0.5 FT

N

SCALE: 1" = 3000'

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FIGURE 1.2-45

LOWER AQUIFER PUMPING TEST G-S D16
DRAWDOWN AT APPROX. 11300 MIN.

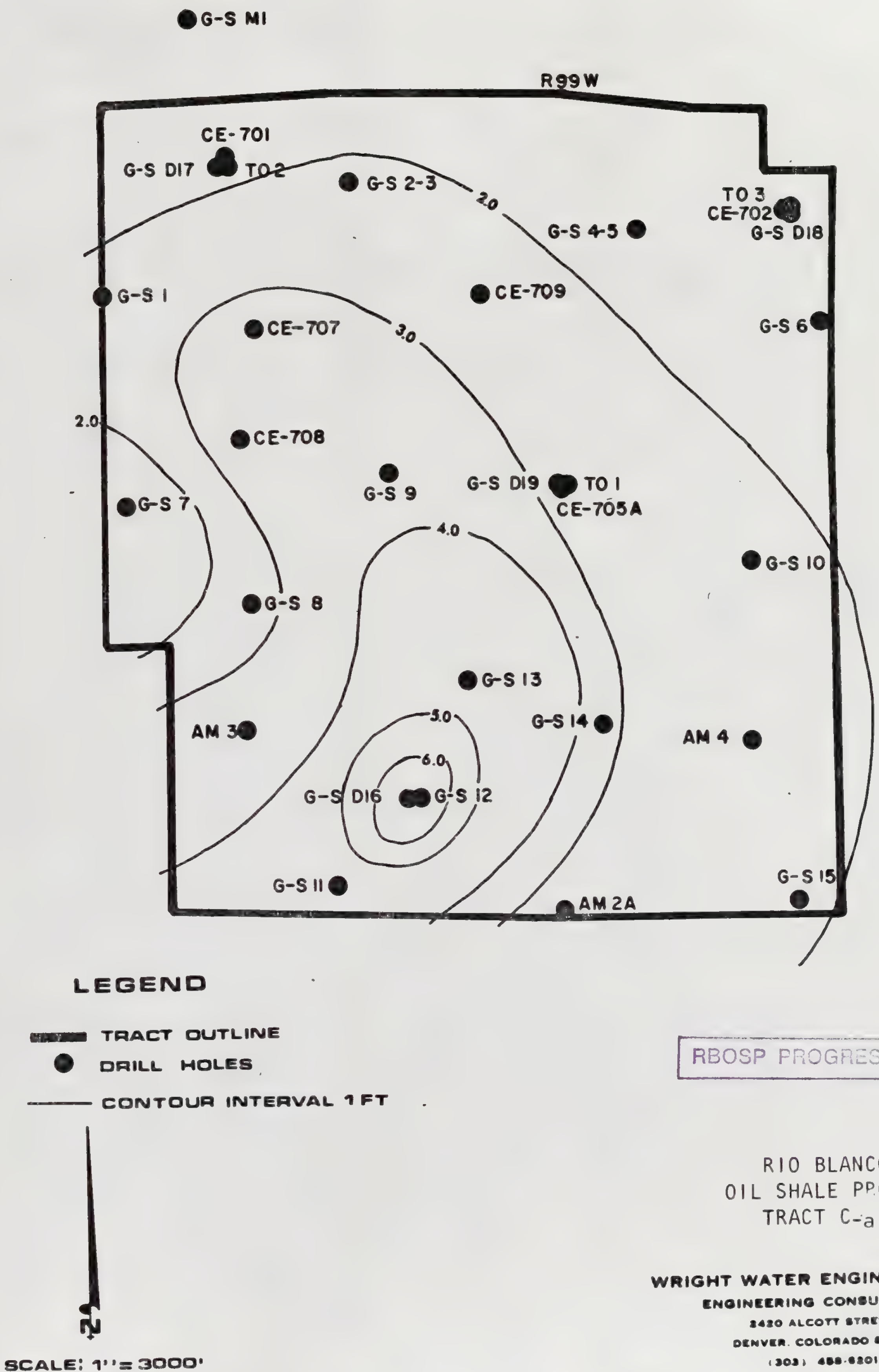
G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
2.0
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
3.0
G-S 6
2.0
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
4.0
G-S 10
G-S 8
G-S 13
5.0
G-S 14
AM 3
AM 4
6.0
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 1 FT
N
SCALE: 1''=3000'

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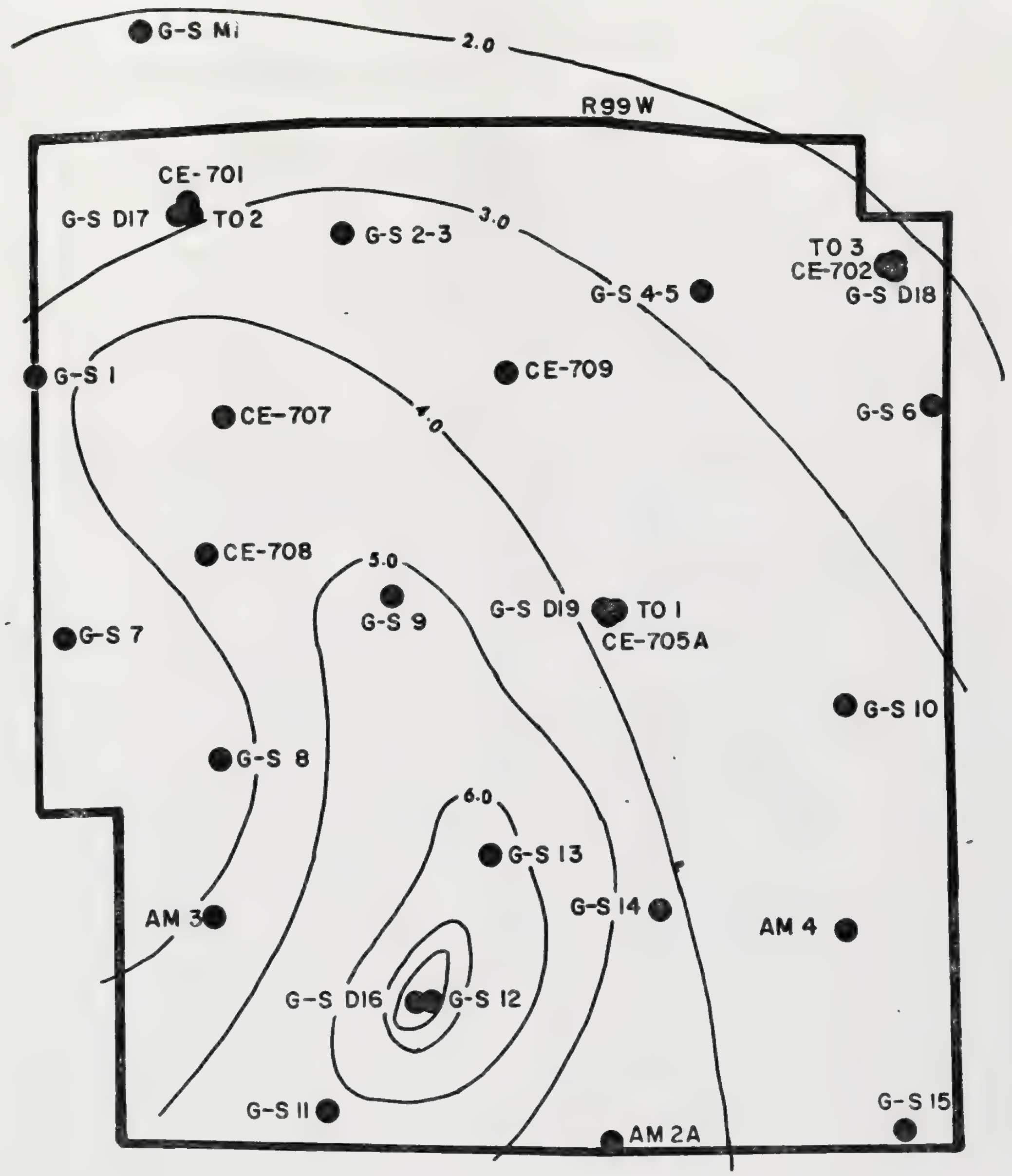
FIGURE 1.2-46

LOWER AQUIFER PUMPING TEST G-S D16

DRAWDOWN AT APPROX. 21500 MIN.


G-S Mi
2.0
R99W
CE-701
G-S D17
TO 2
G-S 2-3
3.0
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
4.0
G-S 6
CE-708
5.0
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
6.0
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

— CONTOUR INTERVAL 1 FT

N

SCALE: 1''=3000'

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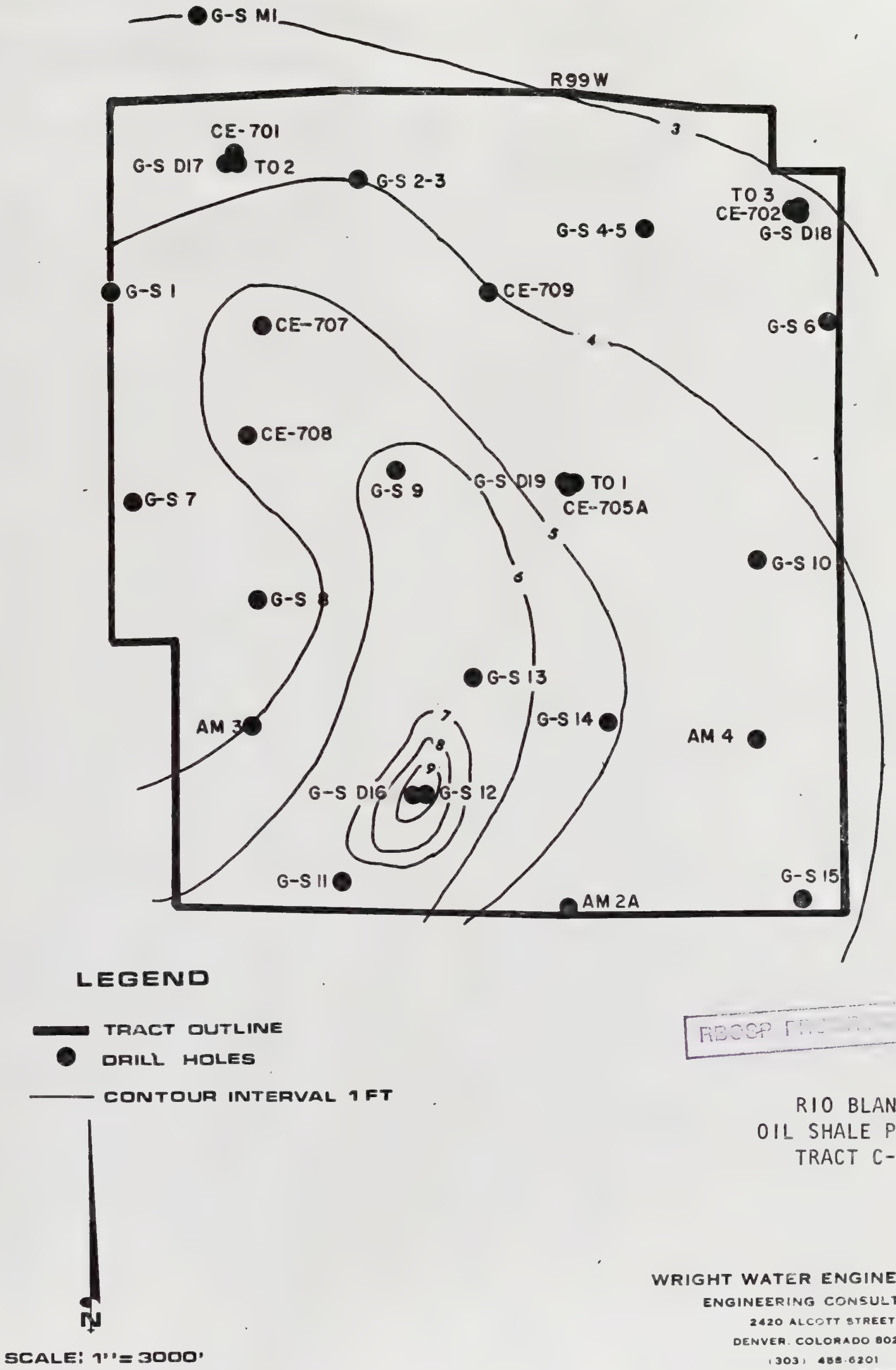
FIGURE 1.2-47

LOWER AQUIFER PUMPING TEST G-S D16
DRAWDOWN AT APPROX. 31500 MIN.


G-S M1
R99W
3
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
4
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
5
G-S 10
6
G-S 8
G-S 13
G-S 14
AM 3
7
AM 4
8
9
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 1 FT
N
SCALE: 1''=3000'

RBOSP [illegible]

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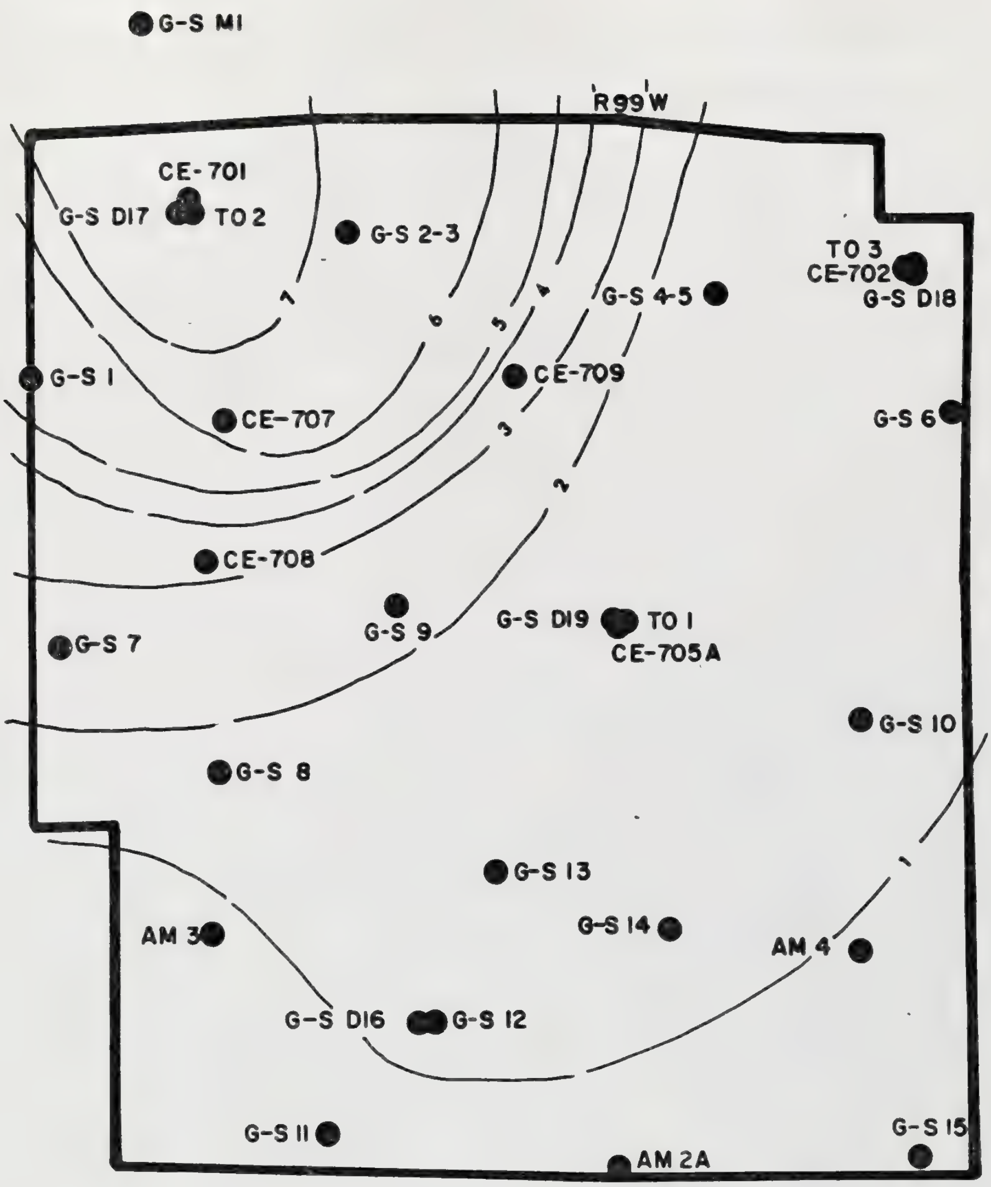
FIGURE 1.2-48

LOWER AQUIFER PUMPING TEST G-S D17

DRAWDOWN AT APPROX. 2700 MIN.


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
7
6
5
4
3
2
1
TO 3
CE-702
G-S D18
G-S 4-5
CE-709
G-S 1
CE-707
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

— CONTOUR INTERVAL 1 FOOT

N

SCALE: 1''= 3000'

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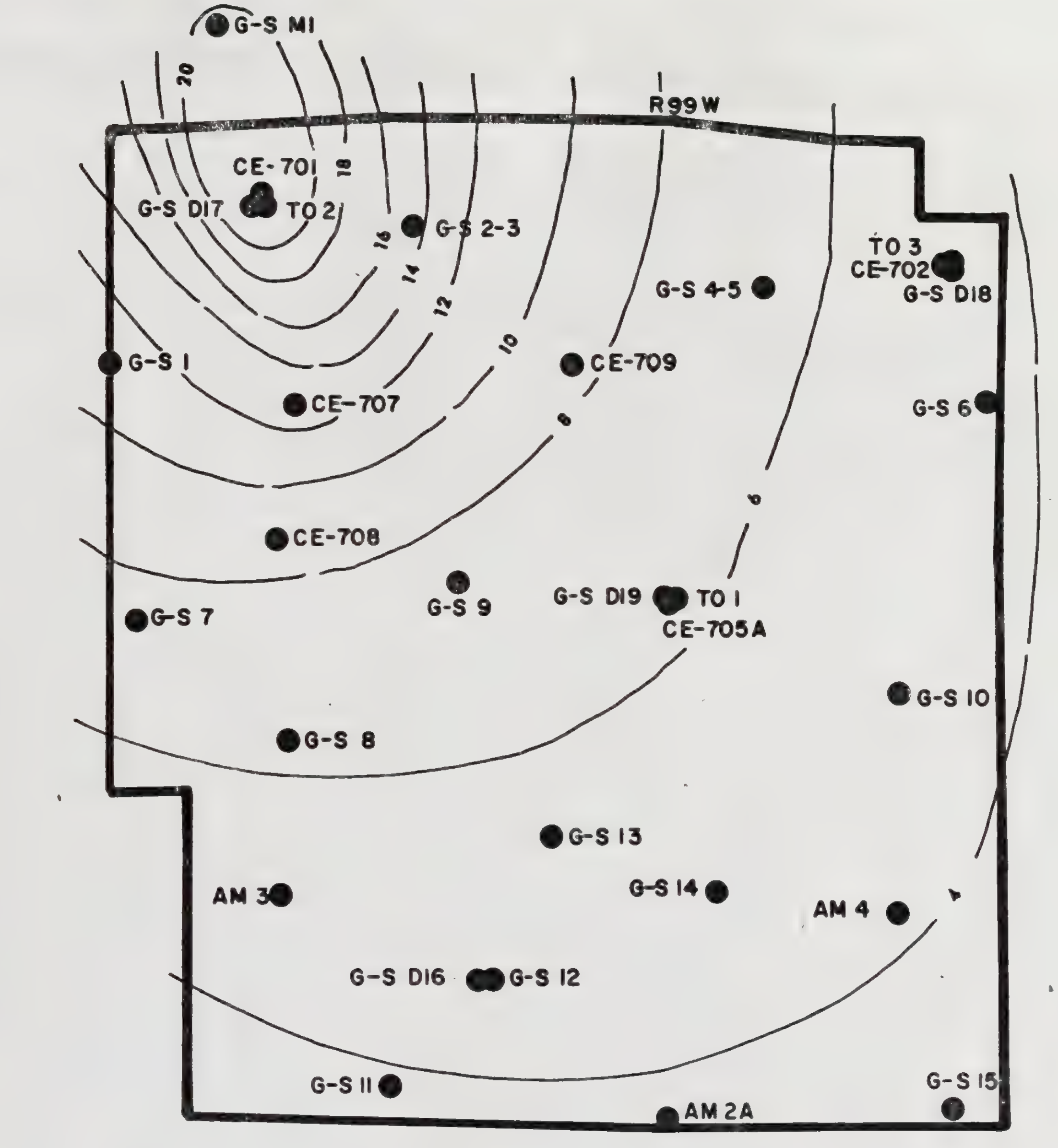
FIGURE 1.2-49

LOWER AQUIFER PUMPING TEST G-S D17
DRAWDOWN AT APPROX. 13000 MIN.


G-S M1
20
18
16
14
12
10
8
6
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

- ▬ TRACT OUTLINE
- ● DRILL HOLES
- — CONTOUR INTERVAL 2 FEET

N

SCALE: 1''= 3000'

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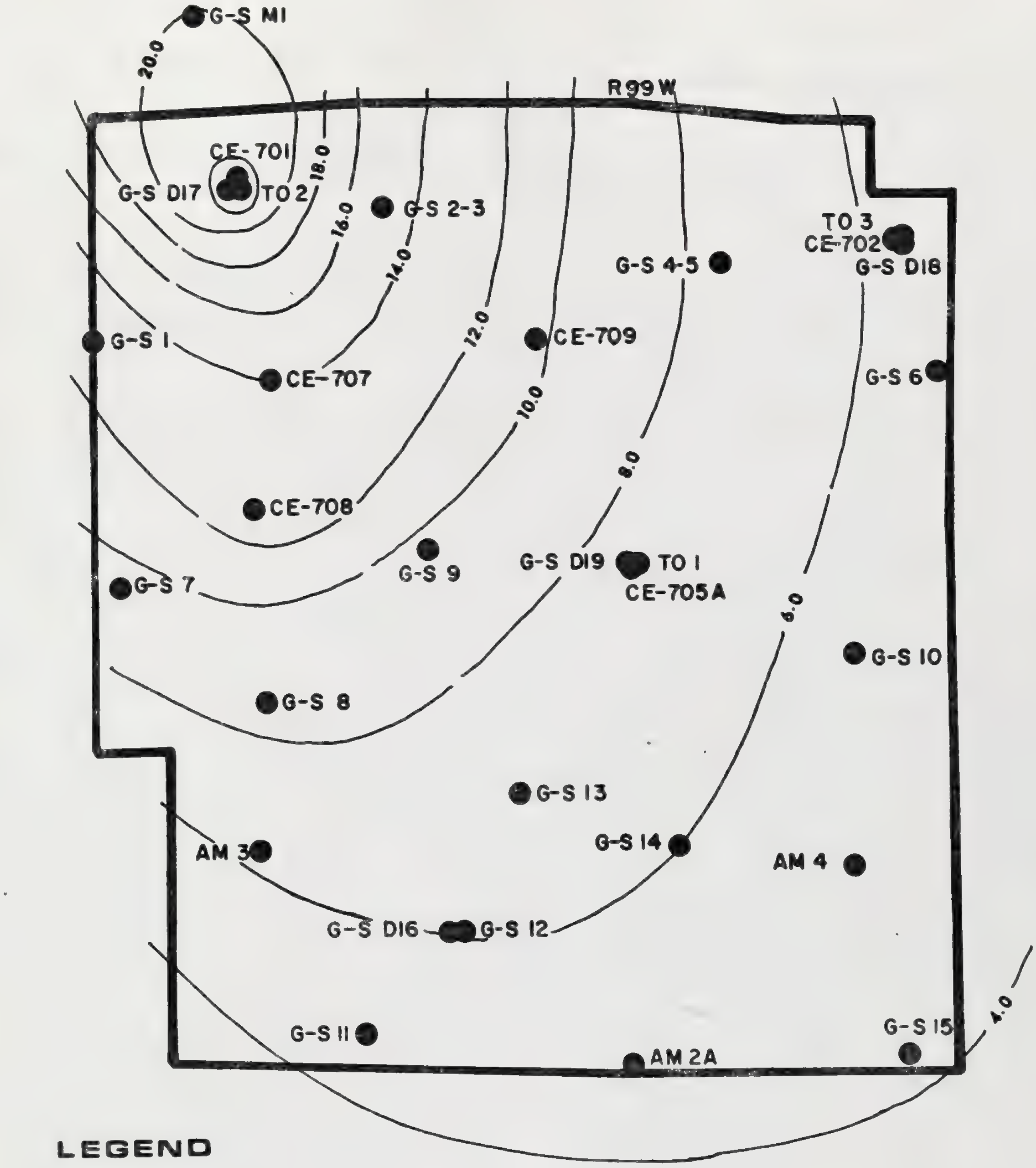
FIGURE 1.2-50

LOWER AQUIFER PUMPING TEST G-S D17

DRAWDOWN AT APPROX. 17500 MIN.



G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-707
CE-709
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0

LEGEND

TRACT OUTLINE

● DRILL HOLES

CONTOUR INTERVAL 2 FEET

N

SCALE: 1''=3000'

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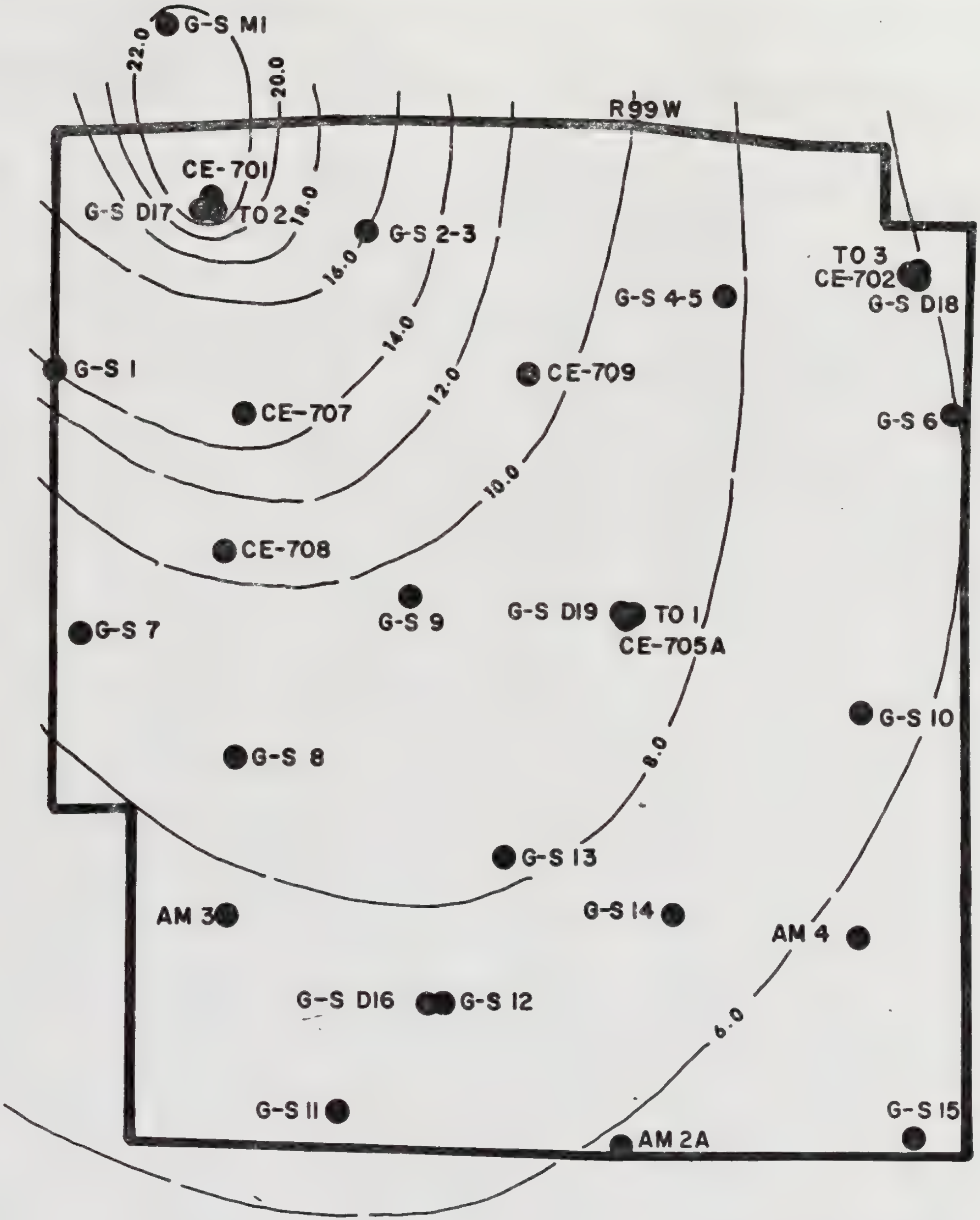
FIGURE 1.2-51

LOWER AQUIFER PUMPING TEST G-S D17

DRAWDOWN AT APPROX. 21500 MIN.


G-S M1
22.0
20.0
R99W
CE-701
G-S D17
TO 2
18.0
G-S 2-3
16.0
TO 3
CE-702
G-S D18
G-S 4-5
14.0
G-S 1
CE-709
12.0
CE-707
G-S 6
10.0
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
8.0
G-S 8
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
6.0
G-S 11
G-S 15
AM 2A

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

—— CONTOUR INTERVAL 2 FEET

SCALE: 1''=3000'

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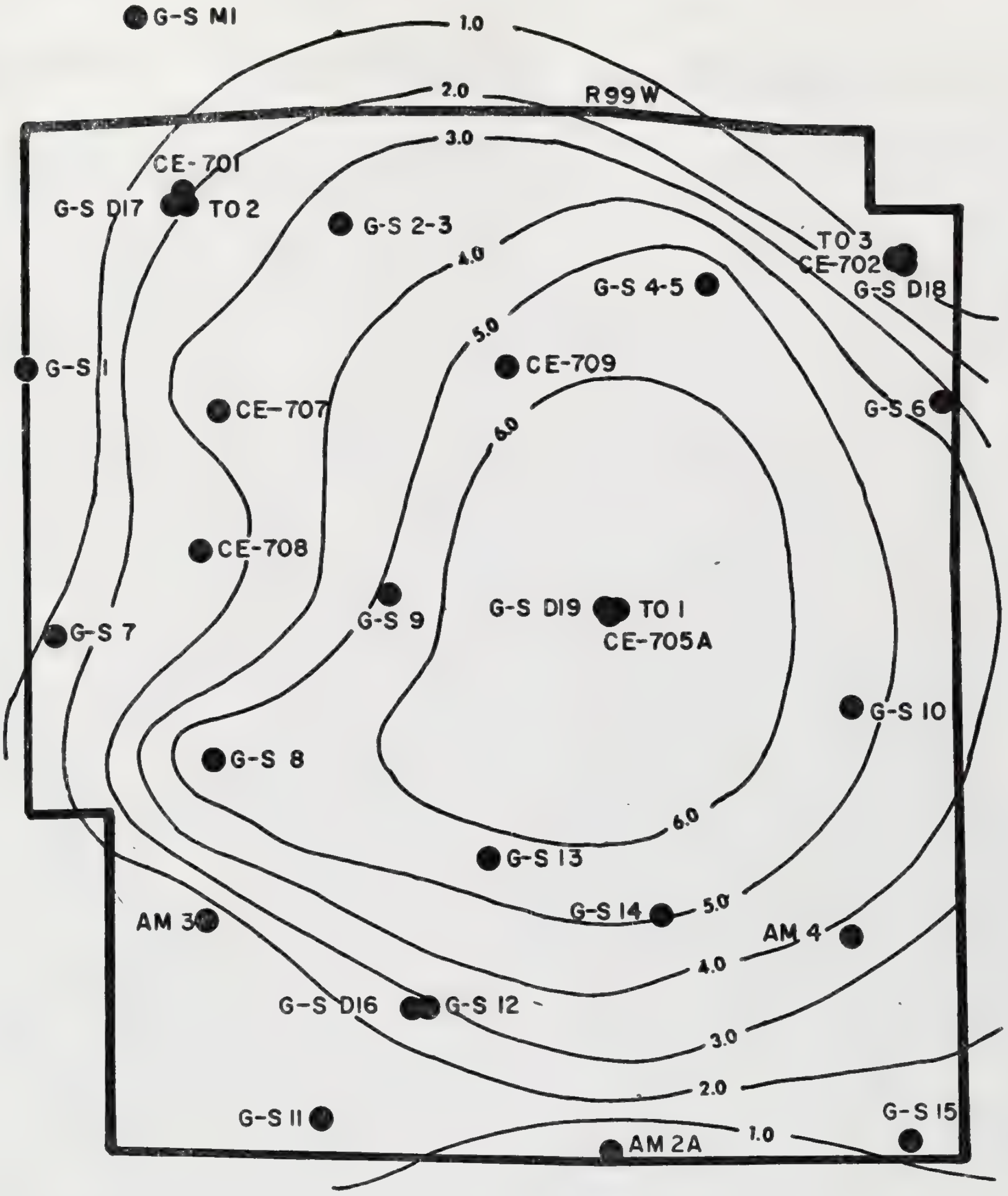
FIGURE 1.2-52

LOWER AQUIFER PUMPING TEST G-S D19

DRAWDOWN AT APPROX. 1400 MIN.


G-S MI
1.0
2.0
R99W
3.0
CE-701
G-S D17
TO 2
G-S 2-3
4.0
TO 3
CE-702
G-S D18
G-S 4-5
5.0
CE-709
G-S 1
CE-707
6.0
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
6.0
G-S 13
G-S 14
5.0
AM 3
AM 4
4.0
G-S D16
G-S 12
3.0
2.0
G-S 11
G-S 15
1.0
AM 2A

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
—— CONTOUR INTERVAL 1 FT

N

SCALE: 1'' = 3000'

RBOSP [illegible]

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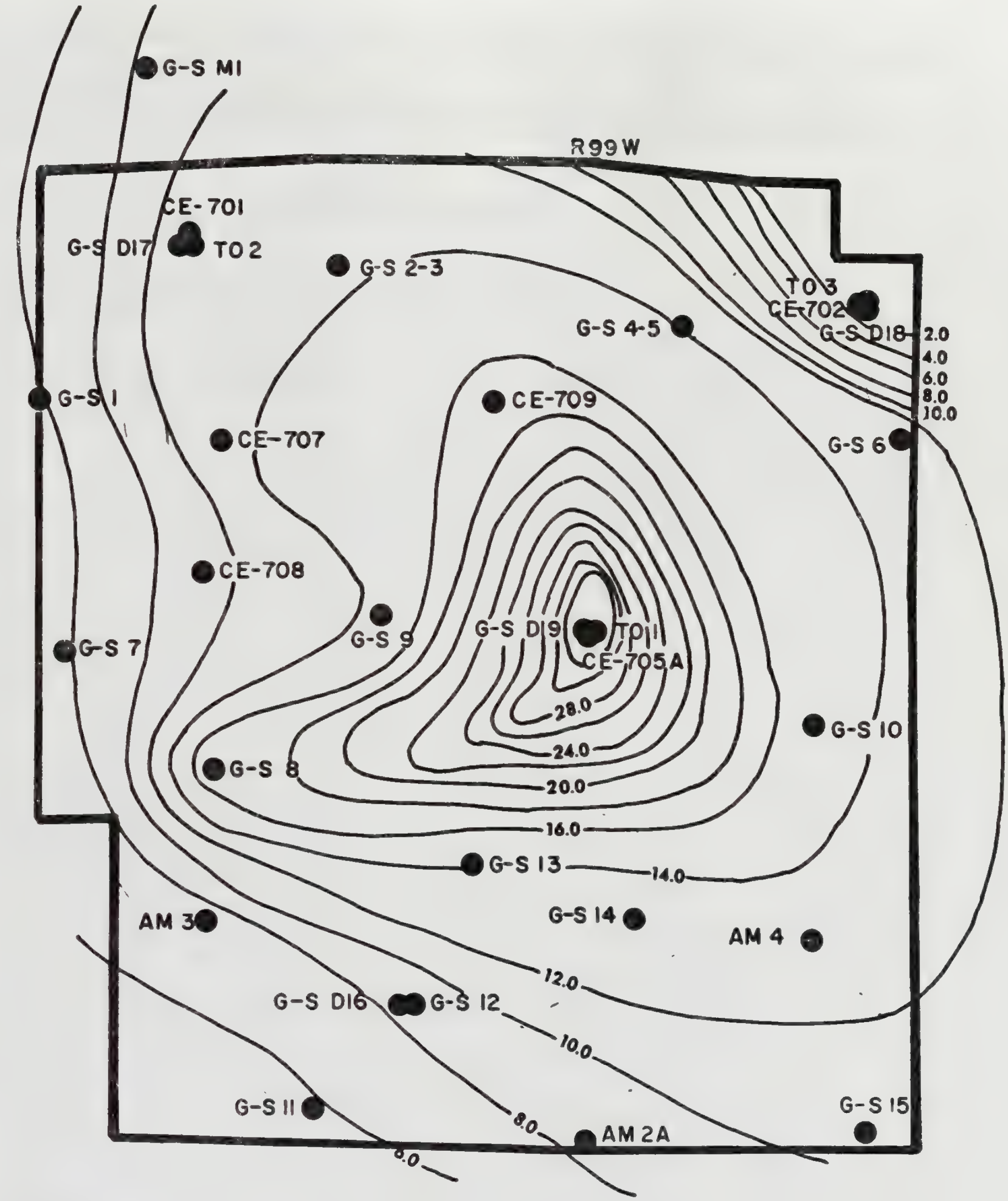
LOWER AQUIFER PUMPING TEST G-S D19
DRAWDOWN AT APPROX. 11500 MIN.


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S 4-5
G-S D18
2.0
4.0
6.0
8.0
10.0
G-S 1
CE-709
CE-707
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
28.0
24.0
20.0
16.0
G-S 10
G-S 8
G-S 13
14.0
AM 3
G-S 14
AM 4
12.0
G-S D16
G-S 12
10.0
G-S 11
8.0
AM 2A
6.0
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
—— CONTOUR INTERVAL 2 FT

N

SCALE: 1'' = 3000'

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FIGURE 1.2-54

LOWER AQUIFER PUMPING TEST G-S D19

DRAWDOWN AT APPROX 21600 MIN.

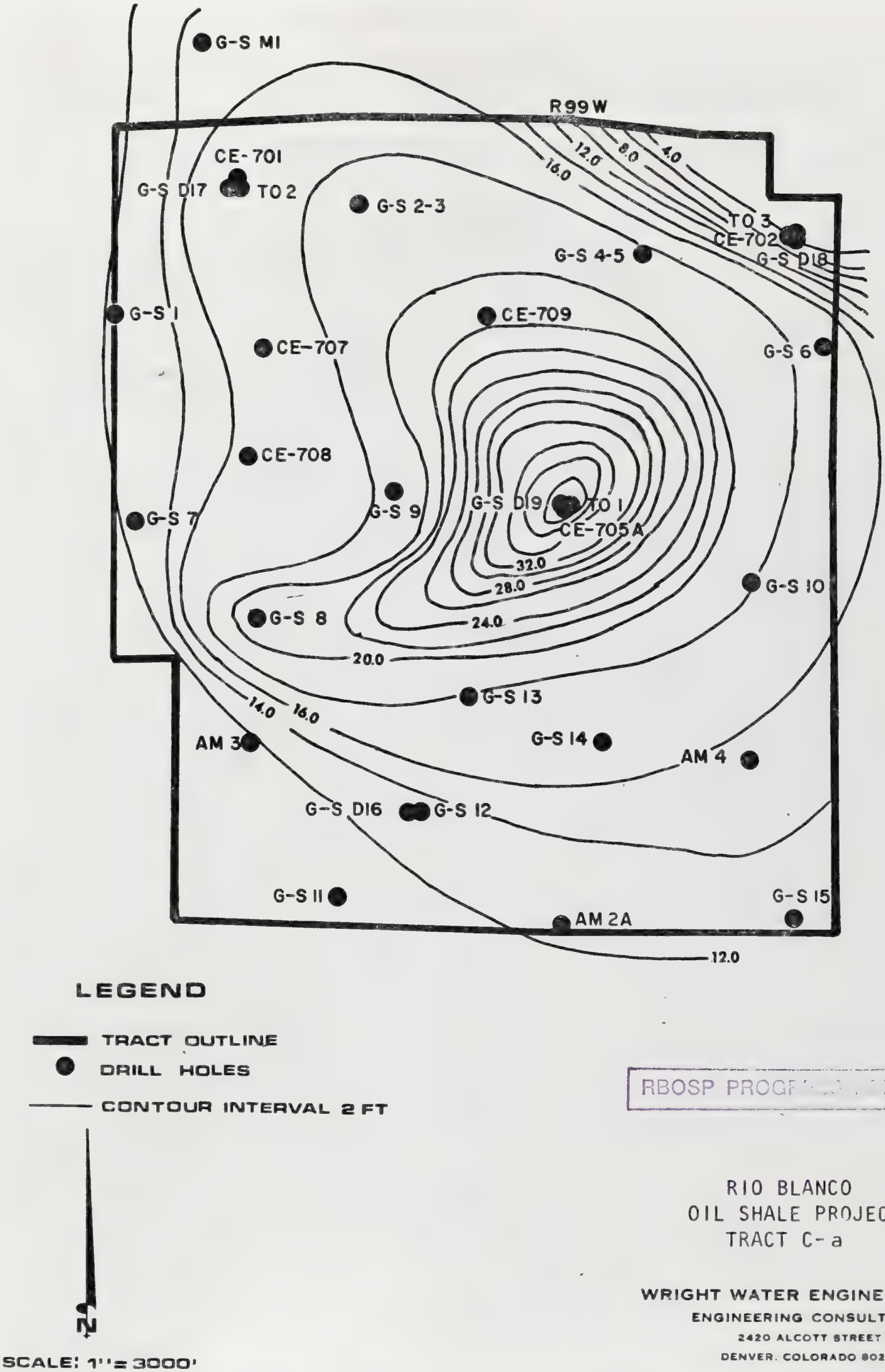
G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
12.0
8.0
4.0
16.0
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
G-S 6
CE-708
G-S 7
G-S 9
G-S D19
TO 1
CE-705A
32.0
28.0
24.0
20.0
G-S 10
G-S 8
G-S 13
14.0
16.0
AM 3
G-S 14
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15
12.0
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 2 FT
N
SCALE: 1''= 3000'

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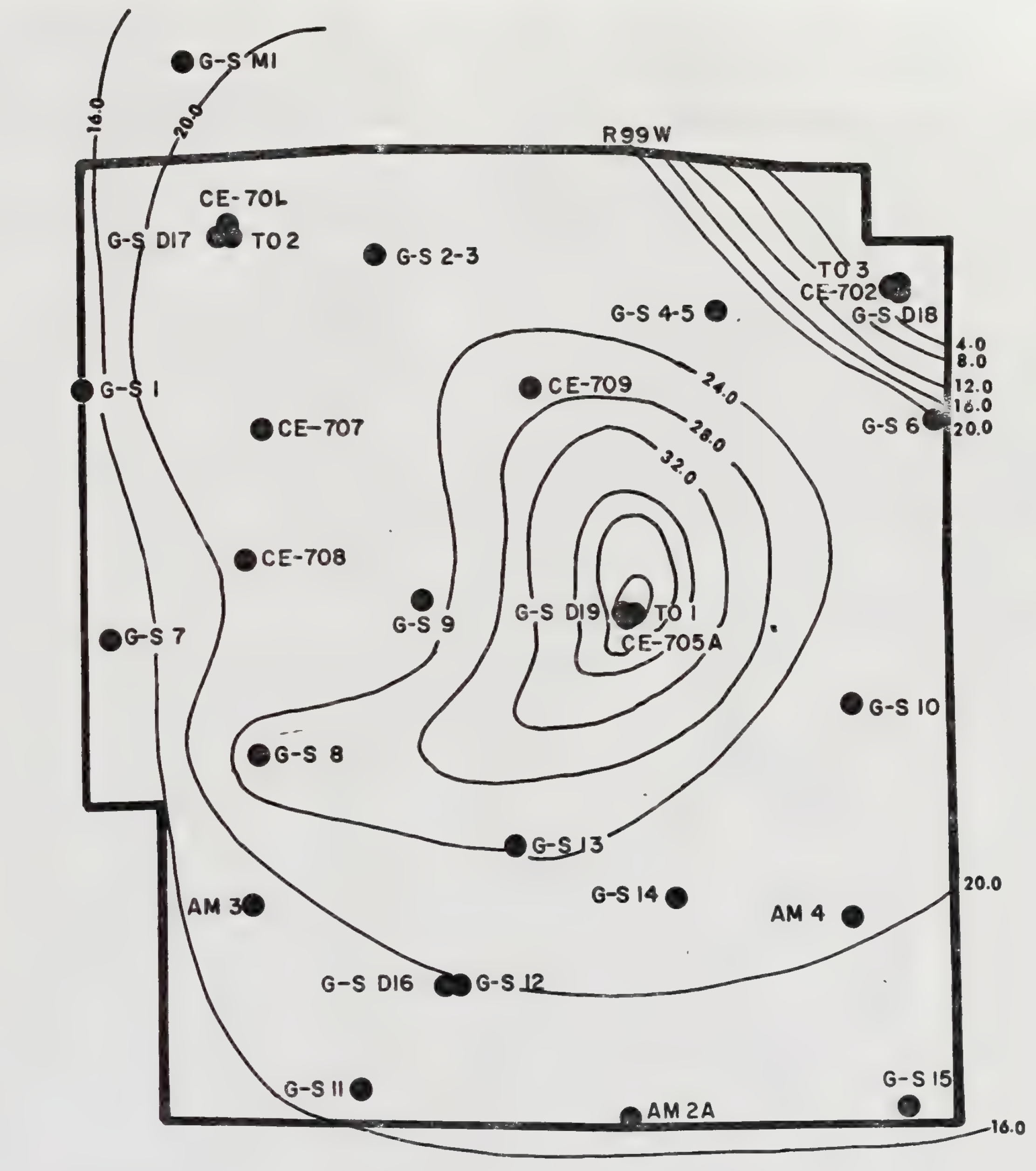
FIGURE 1.2-55

LOWER AQUIFER PUMPING TEST G-S D19
DRAWDOWN AT APPROX. 30000 MIN.


G-S MI
16.0
20.0
R99W
CE-70L
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
4.0
8.0
12.0
16.0
20.0
G-S 1
CE-709
24.0
28.0
32.0
G-S 6
CE-707
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
20.0
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A
16.0

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
—— CONTOUR INTERVAL 4 FT

N

SCALE: 1''= 3000'

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FIGURE 1.2-56

EFFECTS OF PUMPING ON AQUIFER WATER LEVELS
IN THE NE CORNER - TRACT C-a

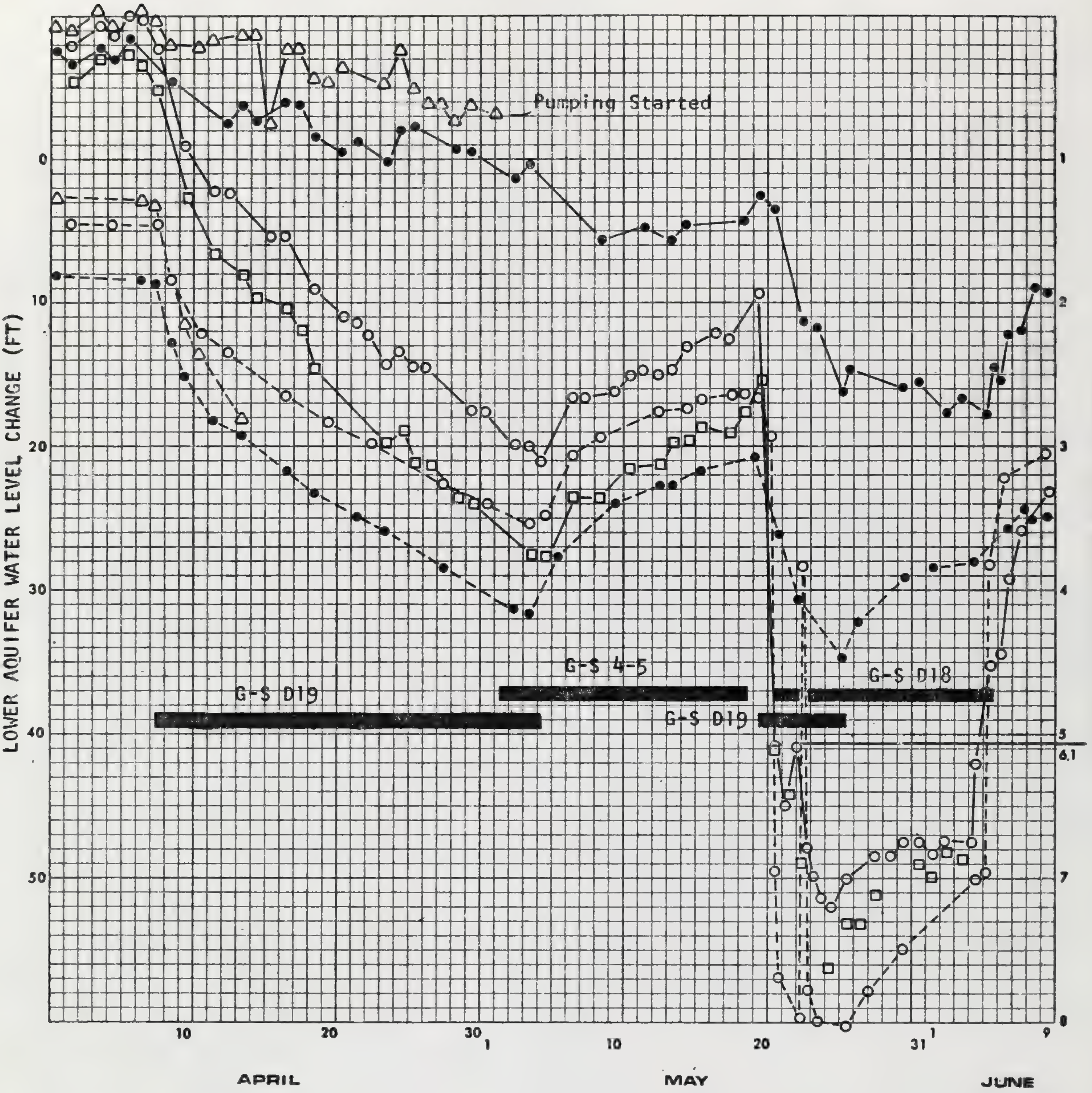

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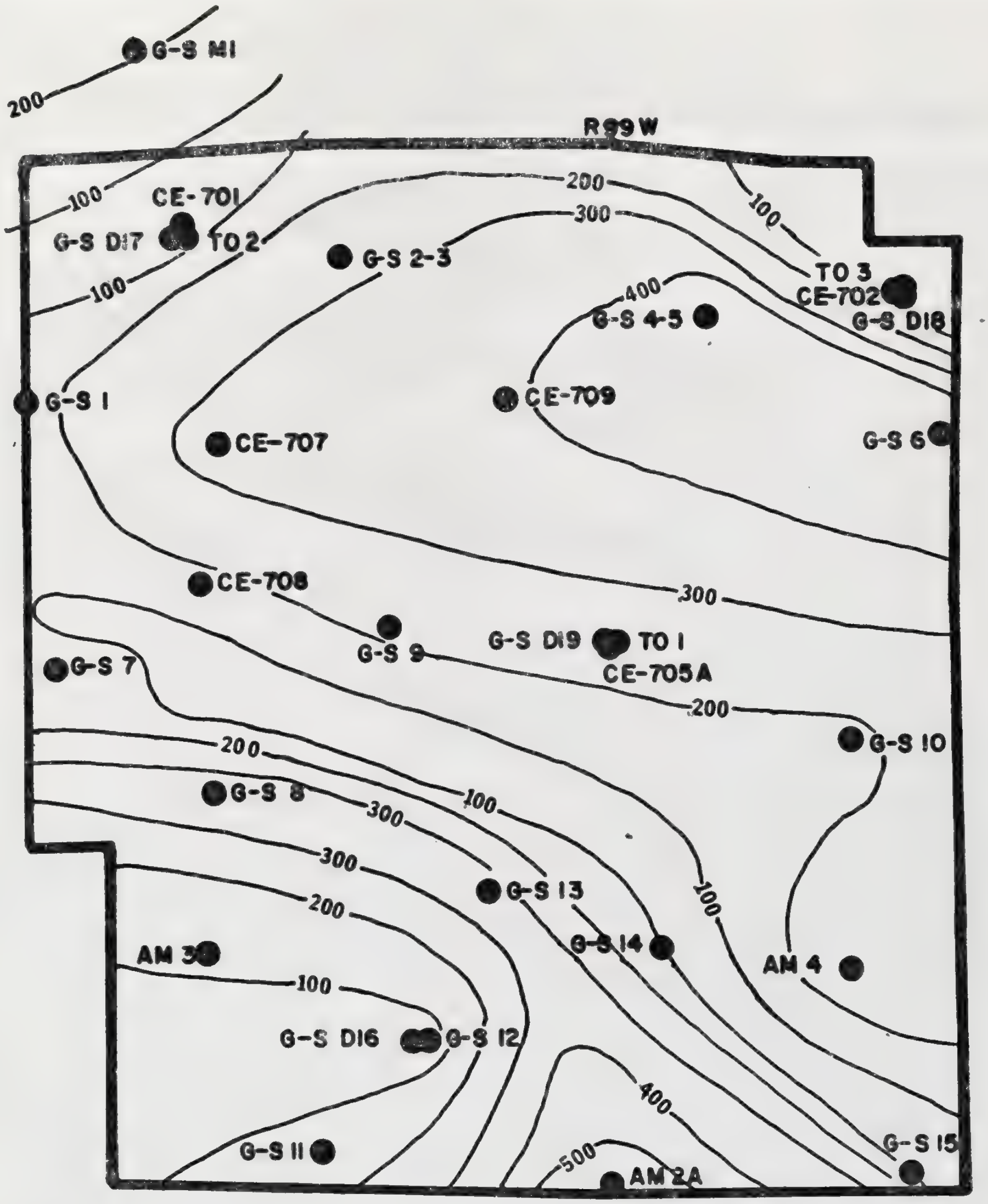
FIGURE 1.2-57

An areal plot of upper and lower aquifer thickness, transmissivities and permeabilities are shown in Figures 1.2-58 to 1.2-62. Transmissivities are based on pumping test weighted averages that were derived assuming standard non-leaky Theis and Jacob theoretical conditions. Aquifer thicknesses were derived from information gained during drilling, such as drilling water quality analysis, production logging, etc. With aquifer thickness and transmissivity established, it is possible to derive formation permeability. This has been done for the lower aquifer (Figure 1.2-61). Due to the lack of data, points for upper aquifer transmissivity areal distribution, an areal permeability map was not plotted. Thickness maps show substantial variation over the Tract. A general thickening trend could not be determined due to troughs and highs that finger into the Tract area.

UPPER AQUIFER THICKNESS (ft)


G-S MI
200
R99W
100
CE-701
G-S D17
TO 2
100
G-S 2-3
200
300
100
TO 3
CE-702
G-S D18
400
G-S 4-5
G-S 1
CE-709
CE-707
G-S 6
CE-708
300
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
200
G-S 10
200
G-S 8
300
100
300
100
200
G-S 13
G-S 14
AM 3
AM 4
100
G-S D16
G-S 12
400
G-S 11
500
AM 2A
G-S 15

LEGEND

- ▬ TRACT OUTLINE
- ● DRILL HOLES
- — CONTOUR INTERVAL 100 FEET

N

SCALE: 1'' = 3000'

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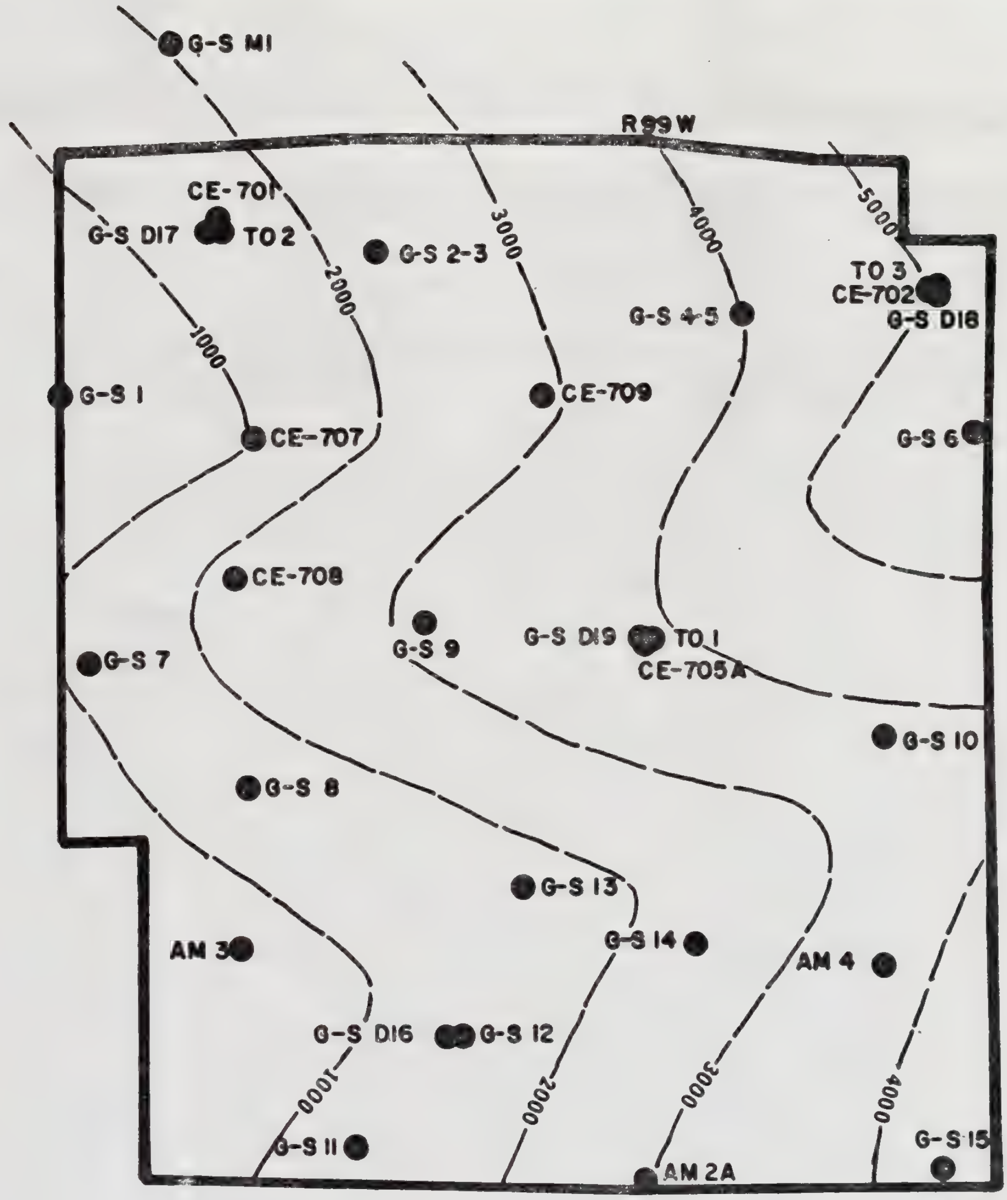
FIGURE 1.2-58

UPPER AQUIFER

APPARENT TRANSMISSIVITY (gpd/ft)


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
3000
4000
5000
2000
TO 3
CE-702
G-S D18
G-S 4-5
1000
G-S 1
CE-709
CE-707
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
1000
2000
3000
4000
G-S 11
G-S 15
AM 2A

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

— — ESTIMATED CONTOUR
INTERVAL 1000 GPD/FT

N

SCALE: 1''=3000'

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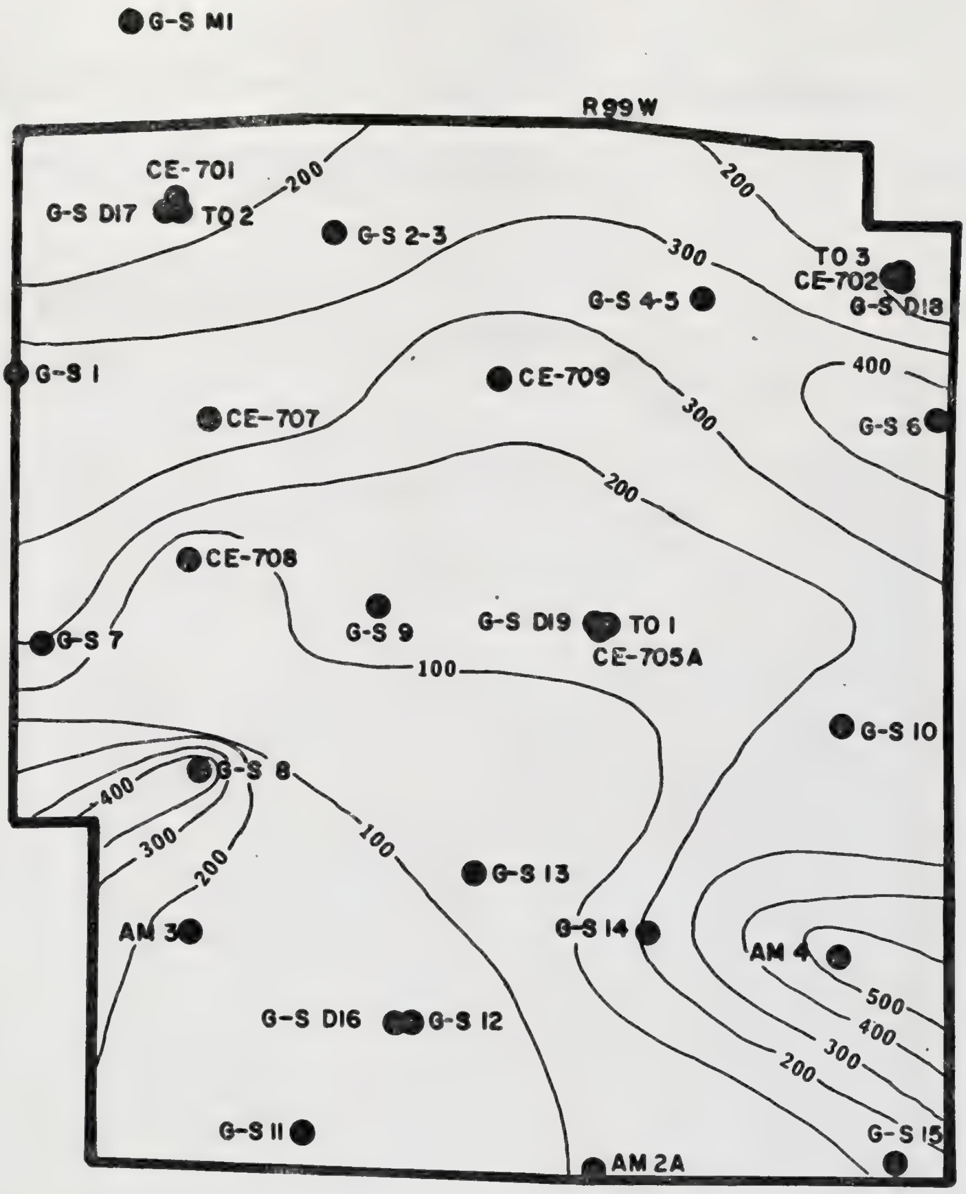
FIGURE 1.2-59

LOWER AQUIFER
THICKNESS (ft.)


G-S MI
R99W
CE-701
G-S D17
TO 2
200
G-S 2-3
300
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
400
CE-707
300
G-S 6
200
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
100
G-S 10
G-S 8
400
300
200
100
G-S 13
AM 3
G-S 14
AM 4
500
400
300
200
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A

LEGEND

TRACT OUTLINE

● DRILL HOLES

CONTOUR INTERVAL
100 FEET

N

SCALE: 1''= 3000'

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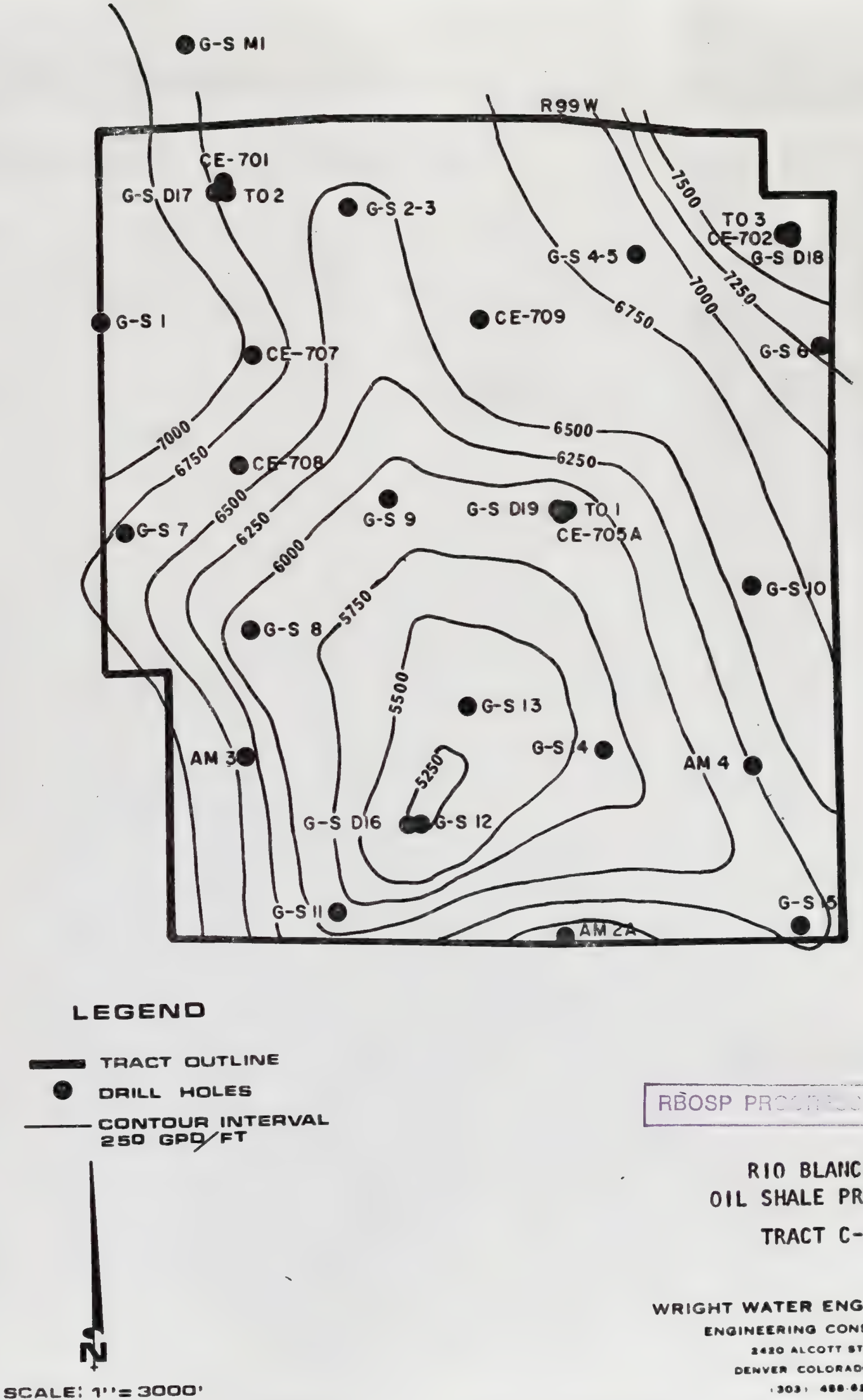
FIGURE 1.2-60

LOWER AQUIFER
TRANSMISSIVITY (gpd/ft)


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
7500
TO 3
CE-702
G-S D18
G-S 4-5
7250
7000
6750
G-S 1
CE-709
CE-707
G-S 6
7000
6500
6750
6250
CE-708
G-S D19
TO 1
G-S 9
CE-705A
G-S 7
6500
6250
6000
G-S 10
5750
G-S 8
5500
G-S 13
G-S 4
AM 3
AM 4
5250
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 250 GPD/FT
N
SCALE: 1''=3000'

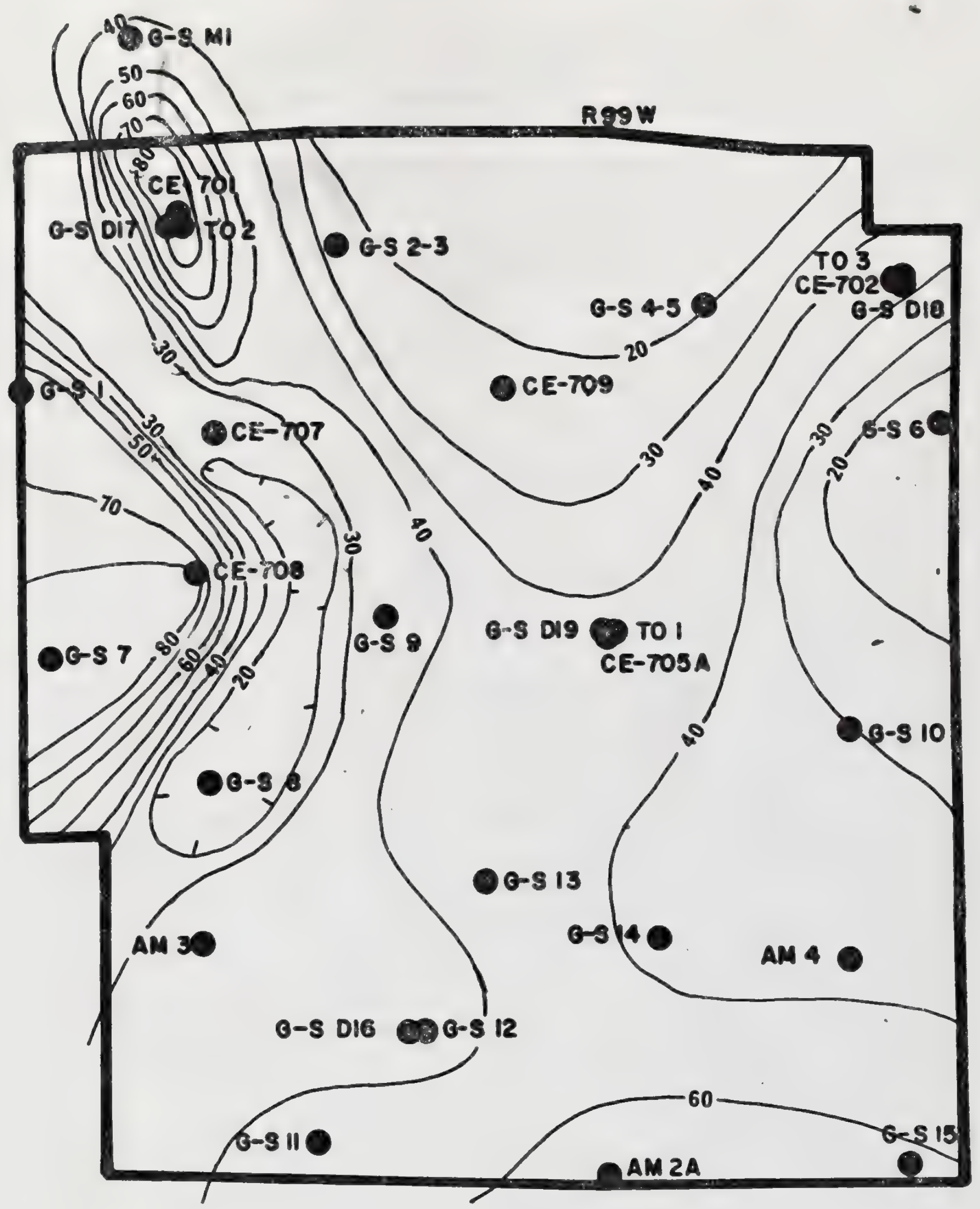
RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER COLORADO 80211
(303) 488-8201

FIGURE 1.2-61

LOWER AQUIFER

PERMEABILITY (gpd/ft^2)


R99W
40
50
60
70
80
G-S MI
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
20
30
CE-709
G-S 1
30
50
CE-707
70
30
40
30
40
G-S 6
30
20
CE-708
G-S 7
80
60
40
20
G-S 9
G-S D19
TO 1
CE-705A
40
G-S 10
G-S 8
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
60
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

— CONTOUR INTERVAL 10 GPD/FT^2

N

SCALE: 1'' = 3000'

RIO BLANCO
OIL SHALE PROJECT

TRACT C-a

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FIGURE 1.2-62

1.2.8.7 Deep Aquifer Monitoring

As part of the interpretive studies, we have compared piezometric levels around Tract C-a at different times for the upper and lower aquifer systems as shown on Figures 1.2-63 to 1.2-71. It should be noted that the first reliable individual aquifer levels were collected in January 1975. The reason that reliable data could not be collected prior to this date was due to the fact that many holes in and around the Tract were not completed to isolate the two aquifers.

Figures 1.2-63 and 1.2-64 show the upper aquifer piezometric levels on January 15 and July 15, 1975 respectively. A comparison of these two piezometric level maps indicates only very minor changes in the water levels for the upper aquifer during this 7 month period. It should also be noted that the slope of approximately 150 feet per mile and the shape of the contours have not changed. The only differences between these two dates is that the elevations have been displaced a short distance to the northeast.

An evaluation of the hydrographs for the deep aquifer monitoring holes included in the Interpretive Text Appendix of the report indicates that from January to August 1975 water level changes in the upper aquifer system have ranged up to 30 feet of increase. Figure 1.2-65 shows the upper aquifer piezometric level changes during this period. As will be noted in the northeast corner of the Tract no change is indicated. In fact, in CE-702 a slight decrease in water level is observed.

The remainder of the Tract water levels rose in the upper aquifer during the previously mentioned period. The greatest increases were in the northwest and south central parts of the Tract. These maximum increases were observed in approximately 3 core holes. Therefore it is felt that this is not an anomaly.

The lower aquifer piezometric maps (Figures 1.2-66 to 1.2-70) between January 1975 and August 1975 show approximately a 25 foot drop in water levels across the Tract. The gradient on the piezometric surface is steepest in the northwest corner of the Tract. Over most of the Tract, the piezometric surface is very flat having less than 10 feet of relief. The piezometric surface steepens greatly to the northeast of the Tract.

There were 15 holes total drilled by Amoco, Tosco and Cameron Engineering during 1971 and 1973. These holes were open between the aquifers until they were completed as monitor holes in the fall of 1974. Because of the difference in head between the upper and lower aquifer, a considerable amount of water flowed downhole into the lower aquifer resulting in a considerable rising of the piezometric surface in the area of the Tract. This mound is declining due to natural processes as the aquifer now returns to equilibrium. Between July and August, water levels have declined one to two feet over most of the Tract. The pumping of the lower aquifer also acted to lower the mound. Water level recovery was limited during the pumping tests because of the mound.

Figure 1.2-71 shows the lower aquifer piezometric level change during the period from January to August 1975. The contours, excluding G-S M1 off-Tract, indicate a change from 20 to 30 feet of decreased head in the lower aquifer. As previously mentioned, this decrease in the water levels is due to the elimination of flow from the upper to the lower aquifer system. The area which shows the lowest change is in the vicinity of CE-707. Generally speaking, the area in the center of the Tract which has 28 feet of change or less has relatively lower permeability than other areas around the Tract as indicated in Figure 1.2-62. In fact, the area between CE-707 and G-S 8 has the lowest permeability.

An investigation was made to determine if recharge effects from seepage along fault structures or percolation was affecting the monitor holes water level over Tract C-a. Little information is known about the period and amplitude of short term recharge effects on the aquifer system, though a relatively long term steady state recharge and discharge situation has been postulated. Since the present water levels in the holes are being affected by previous pump testings and due to past interconnection of the two aquifers, it is expected that recharge effects would be evidenced by an alteration of the present water level trend by a superposition trend.

It was necessary to determine the initial baseline trend and extend this trend in time and then correlate later water level trends with estimated trends. An examination of the hydrographs to date revealed that water levels in the upper aquifer were rising and lower aquifer levels, after initally increasing, are now decreasing. No general sudden increases or decreases were found. An analysis of water level velocities versus time and acceleration versus time was undertaken from May and June hydrograph dates to establish a baseline trend. This trend was projected over July and August and then compared with actual water level trends over this period.

Results for the upper aquifer indicated: water levels were going up at a slightly decelerating rate in May and June while in August the decelerating rate was four times as great; apparently random irregular drops and surges of about .8 feet occur over a period of two to four days. These occurrences have rapidly decreased from May through June.

Results from the lower aquifer to date have indicated: water levels, though initially going up at a rapidly decelerating rate (58 times greater than the upper aquifer), are going down in August at an acceleration rate 4 times less than the deceleration rate in June.

Conclusions on recharge based on this study to date indicate that effects having periods greater than one month and amplitudes greater than .5 feet were not detected from June through August. The overall result of this work to date is the establishment of a preliminary baseline trend against which future hydrograph trends can be compared.

Water level increases were noted in separate holes that appeared to follow a time sequence. The holes that were affected are in sequence, CE-701, CE-707, CE-709 and G-S 9. An investigation of these increases involved establishing the time sequences, geometrical relationships, and correlation of the character of water level increases in each hole, and an attempt at correlation with other hydrological parameters. The apparent horizontal velocity of the event is 40 feet/day. The magnitude of the effect was 5 to 13, 4, 6 and 5 feet in time sequence. Periods of response in the holes were about 15, 5, 15 days for CE-701, CE-707, and CE-708. Information was not available for the determination of period for G-S 9. The character of water level increases and decreases between holes were similar with relative acceleration factors ranging from 2.5 to 5.1 and deceleration factors from 1.3 to 3. Areal correlation between other physical parameters such as aquifer thickness and tranmissivities were not successful.

The result and conclusion of this study show the likelihood of an event moving in a through-like south-southeast direction affecting water levels in CE-701, CE-707, CE-708 and G-S 9. The regularity of movement in time of this event to date suggests that other holes should be affected. Further correlation will be necessary to delineate the validity and/or nature of this interesting effect.

Figures 1.2-72 through 1.2-108 are contours of selected chemical constituents on an areal basis for the upper and lower aquifers.

SUMMARY OF WET CHEMICAL WATER ANALYSIS
UPPER, LOWER, AND COMBINED AQUIFERS
TRACT C-a AND VICINITY

	Lower Aquifer				Upper Aquifer				Combined Aquifer			
	FROM MONITORING & PUMPING				DROM DRILLING & MONITORING & PUMPING				FROM DRILLING			
Item	Low	High	Average	No. Items Avg.	Low	High	Average	No. Items Avg.	Low	High	Average	No. Items Avg.
Aluminum	-0.100	1.600	0.120	45	-0.100	2.200	0.176	46	-0.100	0.100	0.005	21
Ammonia	-0.100	5.600	0.558	128	-0.100	10.600	0.647	144	-0.100	3.000	0.974	28
Arsenic	-0.050	0.050	0.001	148	-0.050	0.200	0.004	155	-0.100	0.500	0.038	30
Bicarbonate	-0.100	11800.000	1082.208	163	-0.100	2760.000	607.246	183	350.000	19600.000	2073.000	58
Cadmium	-0.010	0.030	0.001	149	-0.010	0.100	0.002	139	-0.010	0.070	0.009	24
Calcium	-1.000	515.000	42.120	163	0.800	780.000	69.279	183	0.100	88.000	26.290	58
Carbonate	-1.000	3160.000	98.498	163	-0.100	1190.000	36.312	182	-0.100	3000.000	163.982	57
Chloride	-1.000	205.000	35.704	163	-1.000	240.000	26.287	183	3.000	6600.000	238.352	58
Chromium	-0.050	0.010	0.000	144	-0.050	0.500	0.006	140	-0.050	0.570	0.057	24
Copper	-0.100	0.300	0.018	149	-0.100	0.800	0.028	139	-0.100	0.100	0.004	24
Fluoride	-0.050	120.000	13.547	164	0.060	80.000	4.299	183	0.200	60.000	12.869	58
Hydroxide	-0.100	890.000	221.250	8	-0.100	380.000	9.268	41	-0.100	-0.100	0.0	30
Iron	-0.050	33.000	2.763	163	-0.050	13.000	3.231	167	-0.050	16.000	0.685	51
Lead	-0.100	26.000	0.636	149	-0.050	3.800	0.320	139	-0.050	0.500	0.065	24
Magnesium	-1.000	140.000	37.986	163	-0.100	150.000	50.781	182	0.700	96.000	27.265	57
Mercury	-0.010	0.002	0.000	145	-0.010	0.045	0.000	142	-0.010	-0.010	0.0	16
Nitrate	-0.100	55.000	0.810	163	-0.100	7.000	0.514	183	-0.100	15.000	1.152	58
Phosphate	-0.100	2.400	0.048	150	-0.100	9.200	0.209	142	-0.100	8.200	2.425	24
Potassium	-1.000	84.000	26.800	5	-1.000	93.000	12.773	41	-1.000	76.000	15.167	30
Selenium	-0.010	-0.001	0.0	149	-0.100	0.010	0.000	156	-0.100	0.010	0.000	30
Silicon Dioxide	-0.100	50.000	11.772	163	-0.100	58.000	25.322	183	6.400	41.000	17.790	58
Sodium	36.000	5290.000	534.024	163	40.000	1170.000	273.000	183	165.000	12000.000	1007.276	58
Sulfate	-10.000	740.000	229.021	163	-4.000	900.000	331.404	183	-4.000	535.000	180.534	58
Sulfide	-0.010	2.400	1.467	3	-1.000	4.100	1.556	18	-1.000	12.000	2.753	19
Zinc	-0.500	68.000	1.387	149	- .500	15.000	0.687	130	-0.500	1.000	0.286	14
Gross Alpha	0.100	86.000	6.452	111	0.200	29.000	4.248	95	0.500	12.000	6.675	8
Gross Beta	3.000	830.000	67.290	31	4.000	73.000	16.917	12	1.000	57.000	26.229	7
Hardness	20.000	1,4[illegible]0.000	258.632	163	16.000	1870.000	380.929	183	30.000	520.000	175.000	57
pH	6.000	73.000	7.760	163	6.000	10.200	7.074	183	6.800	8.800	7.904	57
Conductance	760.000	15800.000	2308.627	161	675.000	6290.000	1529.428	182	880.000	28000.000	3426.754	57
Diss. Solids	330.000	12200.000	1589.383	162	425.000	3140.000	1150.743	183	650.000	30700.000	2869.509	57
Manganese	-0.050	0.500	0.057	157	-0.100	0.780	0.114	155	-0.200	0.320	0.018	49
Alkalinity	-0.100	10480.000	929.086	158	-0.100	2360.000	515.561	141	31.000	9310.000	1069.629	27
Cyanide	-0.100	0.030	0.000	143	-0.010	-0.010	0.0	114	---	---	0.0	0
Boron	-0.100	25.000	1.758	146	-0.100	4,800	0.679	125	-0.100	1.500	0.620	10
Barium	-1.000	-0.100	0.0	144	-1.000	-0.100	0.0	115	---	---	0.0	0
Silver	-0.010	0.110	0.004	144	-0.100	0.100	0.008	115	---	---	0.0	0
Nickel	-0.100	0.100	0.022	142	-0.010	0.200	0.026	115	---	---	0.0	0
Lithium	---	---	0.0	0	-0.500	-0.500	0.0	2	---	---	0.0	0
TOC	1.000	37.000	8.849	73	-1.000	34.000	7.884	69	---	---	0.0	0

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TABLE 1.2 - 15a

SUMMARY OF QUALITATIVE SPECTROGRAPHIC ANALYSIS
UPPER, LOWER, AND COMBINED AQUIFERS
TRACT C-a AND VICINITY

	Lower Aquifer FROM MONITORING & PUMPING				Upper Aquifer FROM DRILLING, MONITORING AND PUMPING				Combined Aquifer FROM DRILLING			
Item	Low	High	Average	No. Items Avg.	Low	High	Average	No. Items Avg.	Low	High	Average	No. Items Avg.
Aluminum	0.001	5.000	0.211	6	0.001	1.000	0.172	114	0.010	1.000	0.182	50
Antimony	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Arsenic	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Barium	0.001	0.100	0.043	10	0.001	0.050	0.015	6	0.100	0.100	0.100	1
Berylium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Bismuth	---	---	0.0	0	---	---	0.0	0	0.100	0.100	0.100	1
Boron	0.050	99999.000	0.475	86	-0.020	5.000	0.322	114	0.050	5.000	0.456	53
Cadmium	99999.000	99999.000	0.0	0	99999.000	99999.000	0.0	0	---	---	0.0	0
Calcium	5.000	99999.000	8.929	14	1.000	99999.000	5.500	4	2.000	99999.000	5.500	4
Cerium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Cesium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Chromium	0.001	0.010	0.005	2	0.000	0.050	0.010	13	0.001	0.050	0.012	13
Cobolt	---	---	0.0	0	0.001	0.001	0.001	1	---	---	0.0	0
Columbium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Copper	0.001	0.100	0.009	70	0.000	0.050	0.010	79	0.000	0.050	0.006	30
Dysprosium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Erbium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Europium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Gadolinium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Gallium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Germanium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Gold	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Hafnium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Holmium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Indium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Iridium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Iron	0.005	5.000	0.207	87	0.010	1.000	0.119	112	0.010	10.000	0.518	50
Lanthanum	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Lead	0.001	0.500	0.057	16	0.001	0.500	0.056	27	0.005	0.500	0.129	9
Lithium	0.001	5.000	0.121	54	-0.500	0.500	0.052	65	-0.500	1.000	0.153	36
Lutetium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Magnesium	2.000	99999.000	5.538	13	2.000	99999.000	7.000	6	1.000	99999.000	6.750	12
Manganese	0.001	0.200	0.031	62	0.001	1.000	0.057	69	0.010	10.000	0.520	22
Mercury	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Molybdenum	0.001	0.100	0.009	45	0.001	0.500	0.025	57	0.001	0.061	0.012	28
Neodymium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Nickel	---	---	0.0	0	0.001	0.010	0.007	3	---	---	0.0	0
Osmium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Palladium	---	---	0.0	0	0.100	0.100	0.100	1	---	---	0.0	0
Platinus	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Potassium	0.010	99999.000	1.911	81	0.050	99999.000	1.432	97	0.100	99999.000	1.538	42
Praseodymium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Radium	0.100	2.100	0.476	21	0.100	0.800	0.215	20	0.300	0.500	0.400	3
Rhenium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Rhodium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Rubidium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Ruthenium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Samarium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Scandium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Selenium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Silicon	-0.500	99999.000	7.576	85	2.000	50.000	14.132	114	5.000	99999.000	16.245	53
Silver	0.000	0.001	0.001	10	-0.001	0.001	0.000	14	0.000	0.000	0 000	3
Sodium	0.100	99999.000	7.065	17	2.000	99999.000	8.133	15	99999.000	99999.000	0.0	0
Strontium	0.010	99999.000	0.147	75	0.001	1.000	0.177	82	0.100	0.500	0.185	34
Tantalum	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Terbium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Thallium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Thorium	1.000	1.000	1.000	1	---	---	0.0	0	---	---	0.0	0
Thulium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Tin	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Titanium	0.001	0.050	0.006	37	0.001	0.150	0.017	58	0.001	0.200	0.020	38
Tungsten	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Uranium	-1.500	-1.500	0.0	2	---	---	0.0	0	---	---	0.0	0
Vanadium	---	---	0.0	0	0.001	0.100	0.027	16	0.001	0.050	0.019	19
Ytterbium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Yttrium	---	---	0.0	0	---	---	0.0	0	---	---	0.0	0
Zinc	0.001	0.500	0.087	15	0.001	0.500	0.055	23	0.005	0.100	0.041	4
Zirconium	---	0.0	0	0	---	---	0.0	0	---	---	0.0	0

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With the exception of dissolved solids which are shown on Figures 1.2-72 through 1.2-77, the figures are in alphabetical order by constituent. These figures were made up from the computer calculated and plotted data included in the Raw Data Volume of this report.

Four basic values have been plotted for some of the chemical constituents. These included average values for a given method, unit values for a given method, i.e. a specific value during a sampling period, high values and low values. For example, Figure 1.2-72 shows the dissolved solids average value in parts per million in the upper aquifer as determined by Method 3 in the monitoring program. Figures 1.2-74 through 1.2-77 show the dissolved solids for the upper aquifer during the indicated sampling period. Figure 1.2-84 shows the highest value during the monitoring program for Boron. Low values were not contoured for this report but are included in the computer print-out in the Raw Data Volume of this report.

Figure 1.2-72 and 1.2-73 show the average dissolved solids as determined by the monitoring program (Method 3) for the upper and lower aquifers, respectively. It should be noted that the upper aquifer system has the best water quality along the western Tract boundary and in a rather large area around CE-705A. The poorest water quality is noted in the northeast corner of the Tract in the vicinity of CE-702. The average dissolved solids for the lower aquifer system indicate again that the best water quality is found along the western Tract boundary and the poorest water quality in the northeast corner of the Tract. Generally speaking, significant changes of dissolved solids during the monitoring period of January through August were not observed in the lower aquifer system.

Figures 1.2-74 through 1.2-75 show the change in dissolved solids on a monthly basis from April through July 1975. In general, the dissolved solids changes do not appear to be significant with the exception of the area around CE-705 which appears to have decreased in water quality during the period from April through July 1975.

The remaining plots of various chemical constituents are included for additional information. It is anticipated that these will be quite useful for water supply purposes in determining water quality during the dewatering operation. It should be noted that generally speaking, the northeast corner of the Tract appears to have values in the upper aquifer which are quite similar to those values in the lower aquifer. The only additional discussion on these figures will be to highlight specific anomalies.

Figure 1.2-87 shows the average value for calcium in the lower aquifer. It should be noted that the area around G-S 8 shows unusually high calcium values. One explanation for this anomaly is that during the completion of G-S 8, a cementing problem occurred. It is felt that a miscalculation was made on the amount of cement pumped into the annulus between the 5-1/2-inch liner and the bore hole wall. It is for that reason that the hole was completed as a lower aquifer monitor hole only. As indicated by the water quality, specifically pH and calcium, it is felt that a chemical reaction between the lower aquifer water and the cement is the cause of the anomaly.

Figures 1.2-94 and 1.2-95 show the average values of iron for the upper and lower aquifers, respectively. The concentrations appear to be extremely high, ranging from 1 to over 12 parts per million. On reviewing the iron values throughout the monitoring program, it was noticed that:

1. Older holes have the highest iron concentrations, and
2. That the iron concentrations in the majority of the holes were increasing with time.

Therefore, it is felt that the aquifer water is reacting with the casing in these monitor holes.

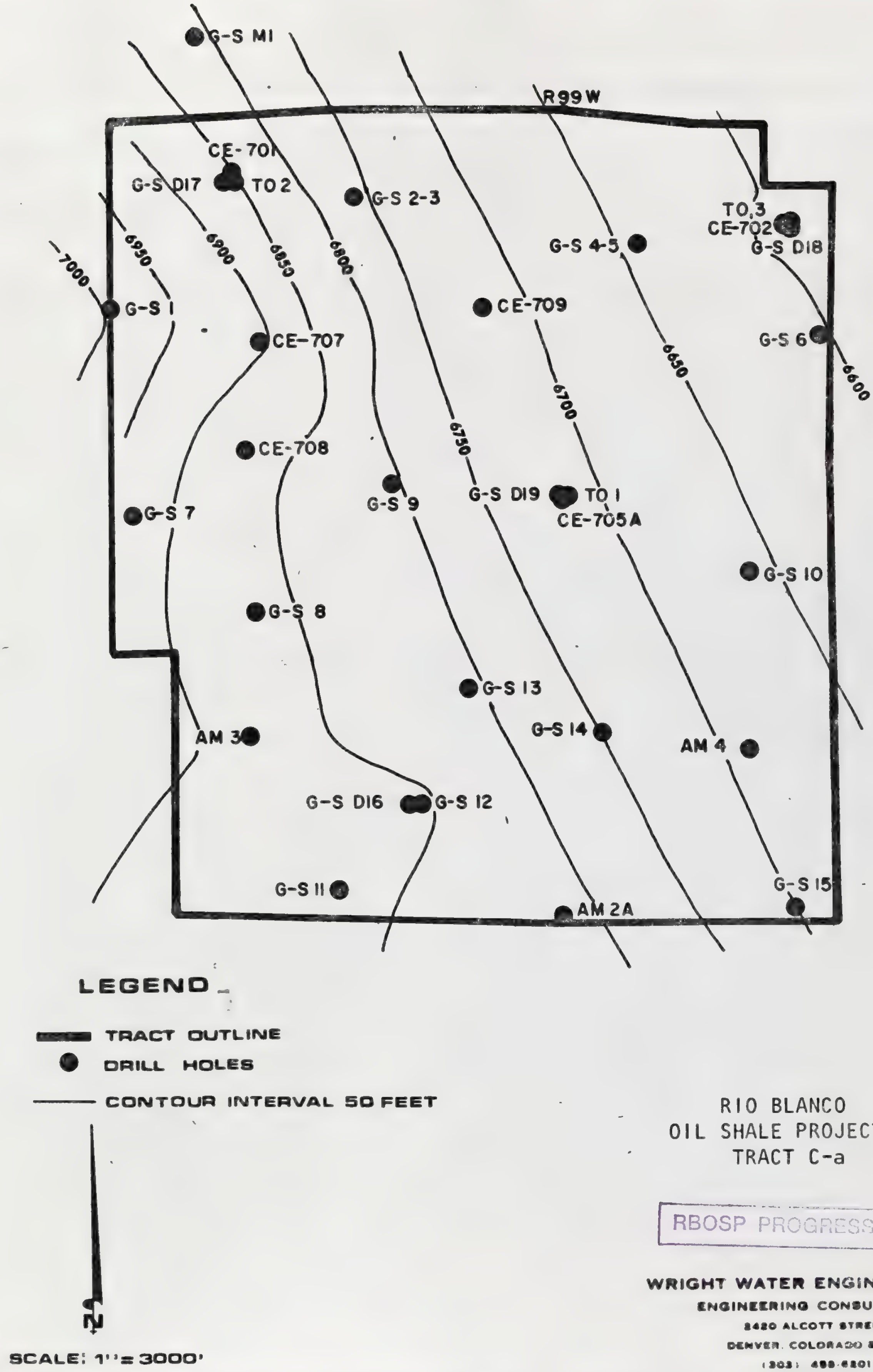
1.2.8.8 Summary and Conclusions

The following summary is somewhat cursory in nature due to the vast amount of data and the rather limited time with which to review it for this Progress Report No. 4. It is anticipated that additional review and conclusions will be forthcoming in subsequent reports.

The following is a list of conclusions from our present interpretation of the data:

1. Lower aquifer monitor hole G-S 8 has been contaminated by cement.
2. The high iron content indicated by the monitoring program in the upper and lower aquifer systems is due to a chemical reaction between the casing and the aquifer water.
3. An interconnection between the upper and lower aquifer systems still exists in the northeast corner of Tract C-a.
4. Vertical leakage appears to have affected some of the upper aquifer pumping tests.
5. At CE-705A, there is a possible connection with the surface water system.
6. The upper aquifer system had higher piezometric levels prior to the drilling of the first core holes on and in the vicinity of Tract C-a.
7. Prior to 1971, the lower aquifer system had lower piezometric levels than those we are measuring at this time.
8. Approximately 5,000 to 15,000 acre-feet of water was discharged from the upper aquifer system to the lower aquifer system from October 1971 to November 1974.

UPPER AQUIFER
PIEZOMETRIC LEVELS (ft.)
JANUARY 15, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
7000
6950
6900
6850
6800
G-S 1
CE-707
CE-709
G-S 6
6650
6600
6700
6750
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 50 FEET
N
SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
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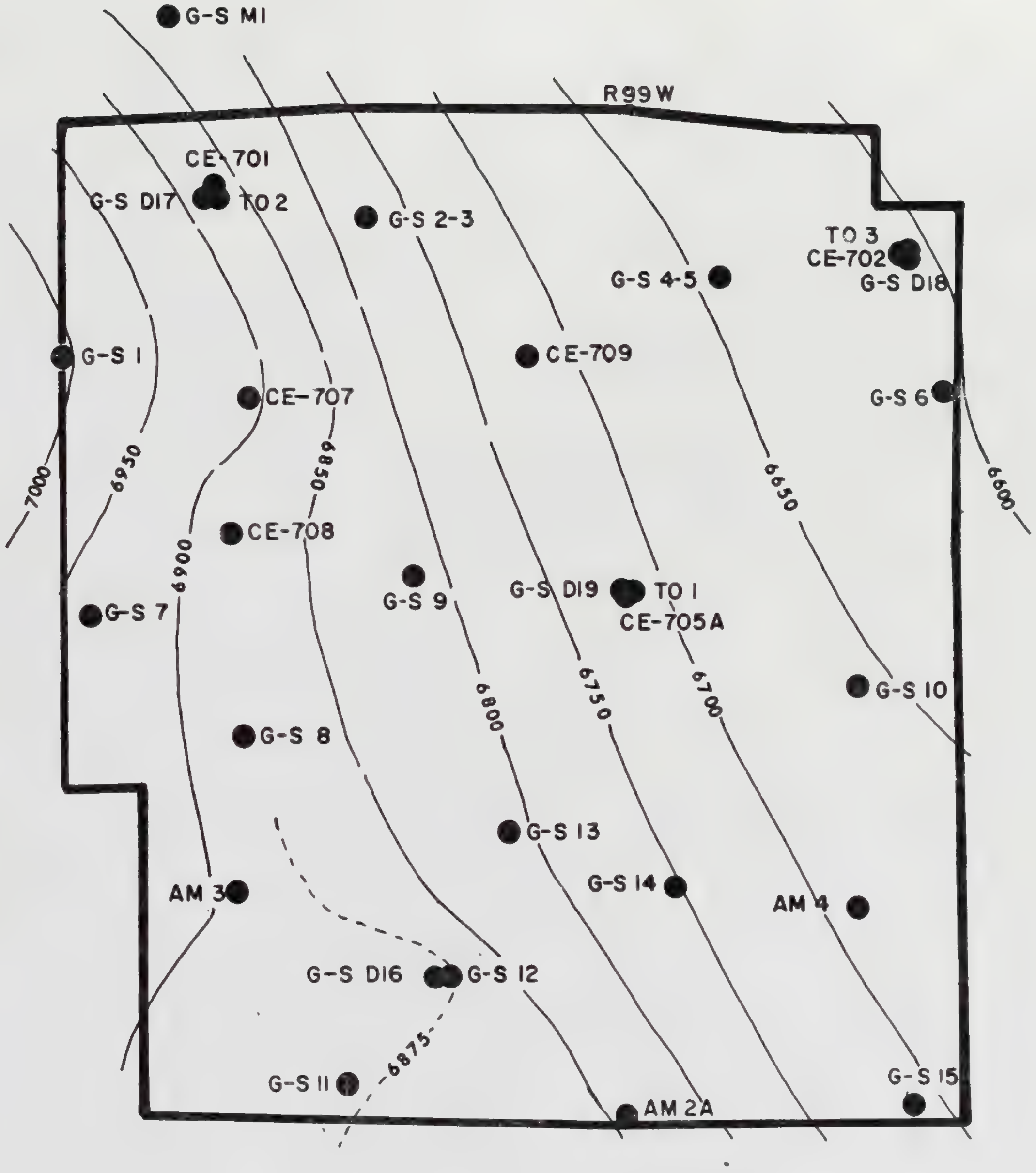
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-63

UPPER AQUIFER
PIEZOMETRIC LEVELS (ft.)
AUGUST 30, 1975


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
G-S 6
CE-707
7000
6950
6850
6650
6600
CE-708
6900
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
6800
6750
6700
G-S 8
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
6875
G-S 11
G-S 15
AM 2A

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

—— CONTOUR INTERVAL 50 FEET

------ SUPPLEMENTARY CONTOUR

N

SCALE: 1'' = 3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

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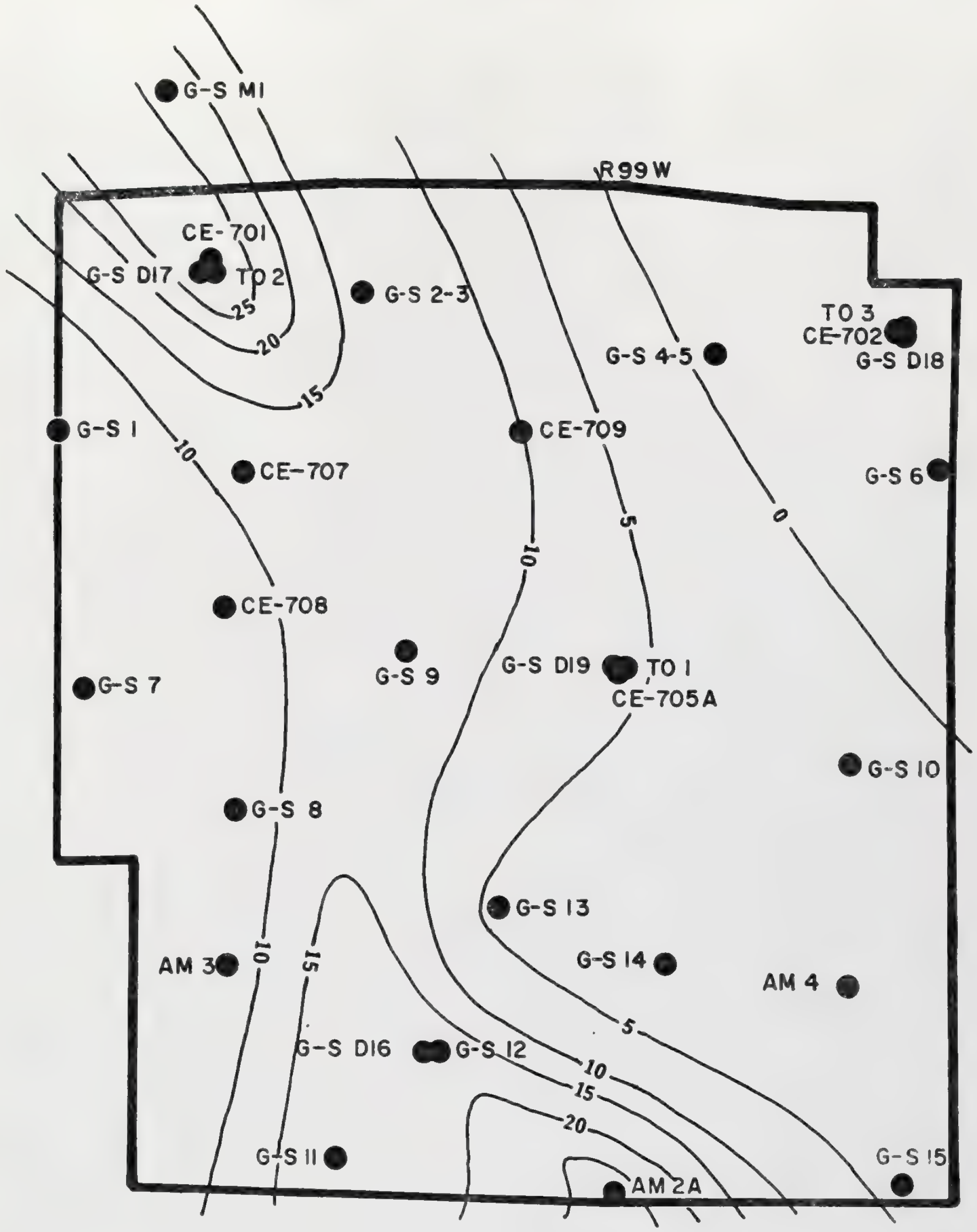
(303) 488 6201

FIGURE 1.2-64

INCREASE IN UPPER AQUIFER
PIEZOMETRIC LEVEL
JANUARY 15 TO AUGUST 30, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
25
20
15
10
5
0
G-S 1
CE-707
CE-709
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 5.0 FT.

N

SCALE: 1" = 3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

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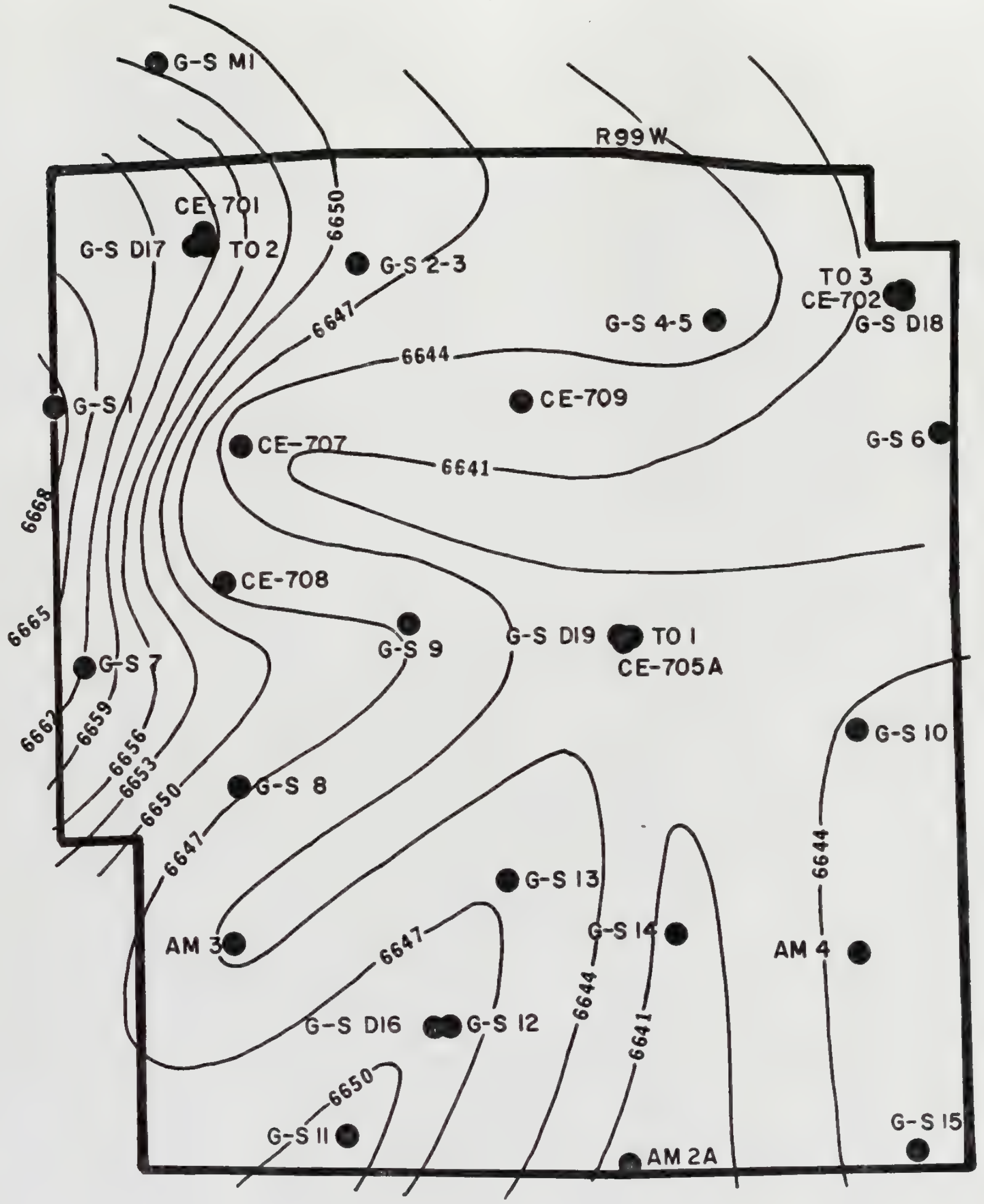
DENVER COLORADO 80211
(303) 458-6201

FIGURE 1.2-65

LOWER AQUIFER
PIEZOMETRIC LEVELS (ft.)
JANUARY 16, 1975



G-S MI
R99W
CE-701
G-S D17
TO 2
6650
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
6647
6644
CE-709
G-S 1
G-S 6
CE-707
6641
6668
CE-708
6665
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
6662
6659
6656
6653
6650
G-S 10
G-S 8
6647
6644
G-S 13
AM 3
G-S 14
AM 4
6647
6644
6641
G-S D16
G-S 12
6650
G-S 11
AM 2A
G-S 15

LEGEND

- TRACT OUTLINE
- ● DRILL HOLES
- CONTOUR INTERVAL 3 FT

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
Tract C-a

RBOSP [illegible]

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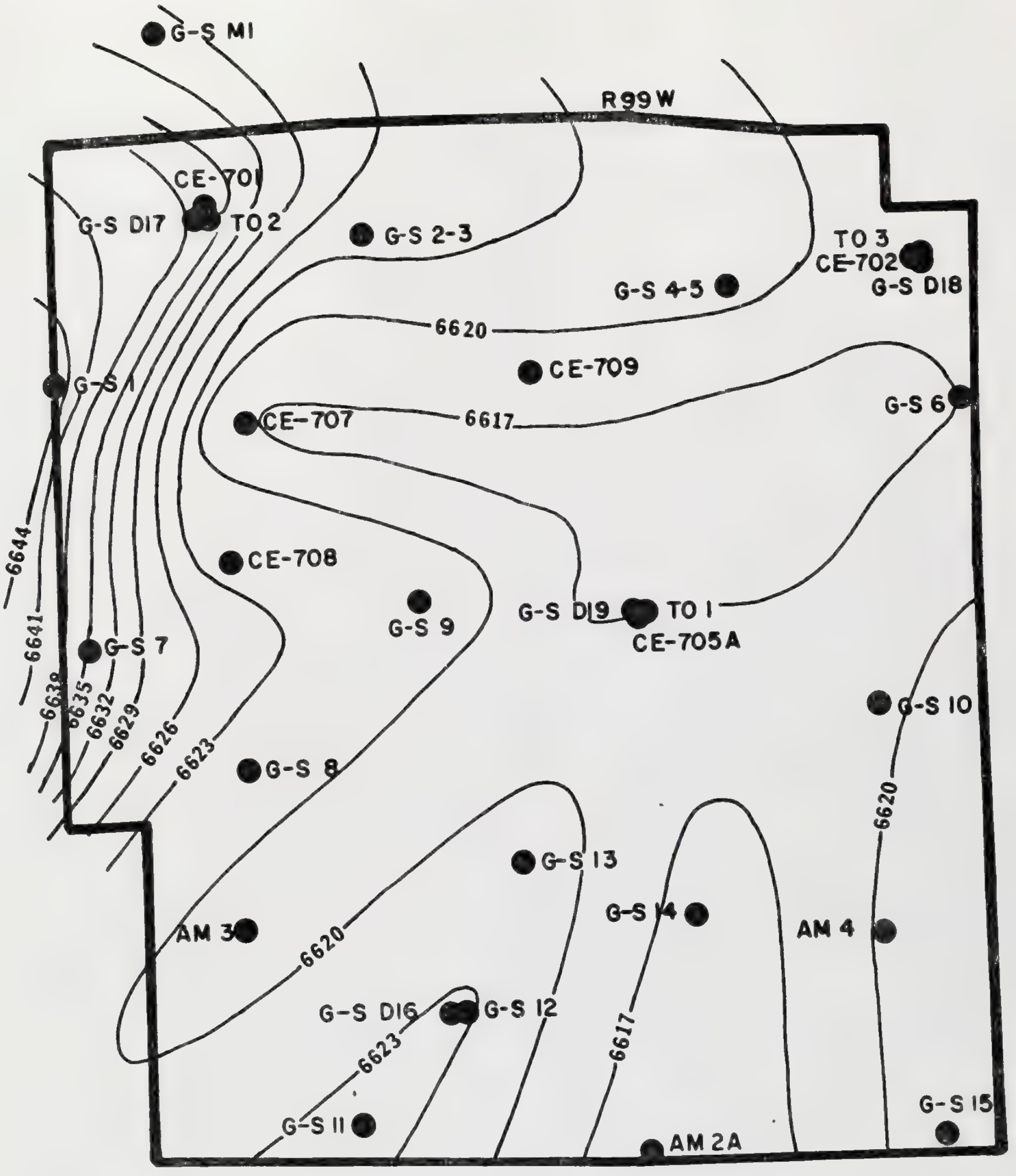
(303) 458-6201

FIGURE 1.2-66

LOWER AQUIFER

PIEZOMETRIC LEVELS (ft.)

May 15, 1975


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
6620
CE-709
G-S 1
CE-707
6617
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
6644
6641
6638
6635
6632
6629
6626
6623
G-S 7
G-S 10
G-S 8
6620
G-S 13
G-S 14
AM 3
AM 4
6620
G-S D16
G-S 12
6623
6617
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

— CONTOUR INTERVAL 3 FT

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
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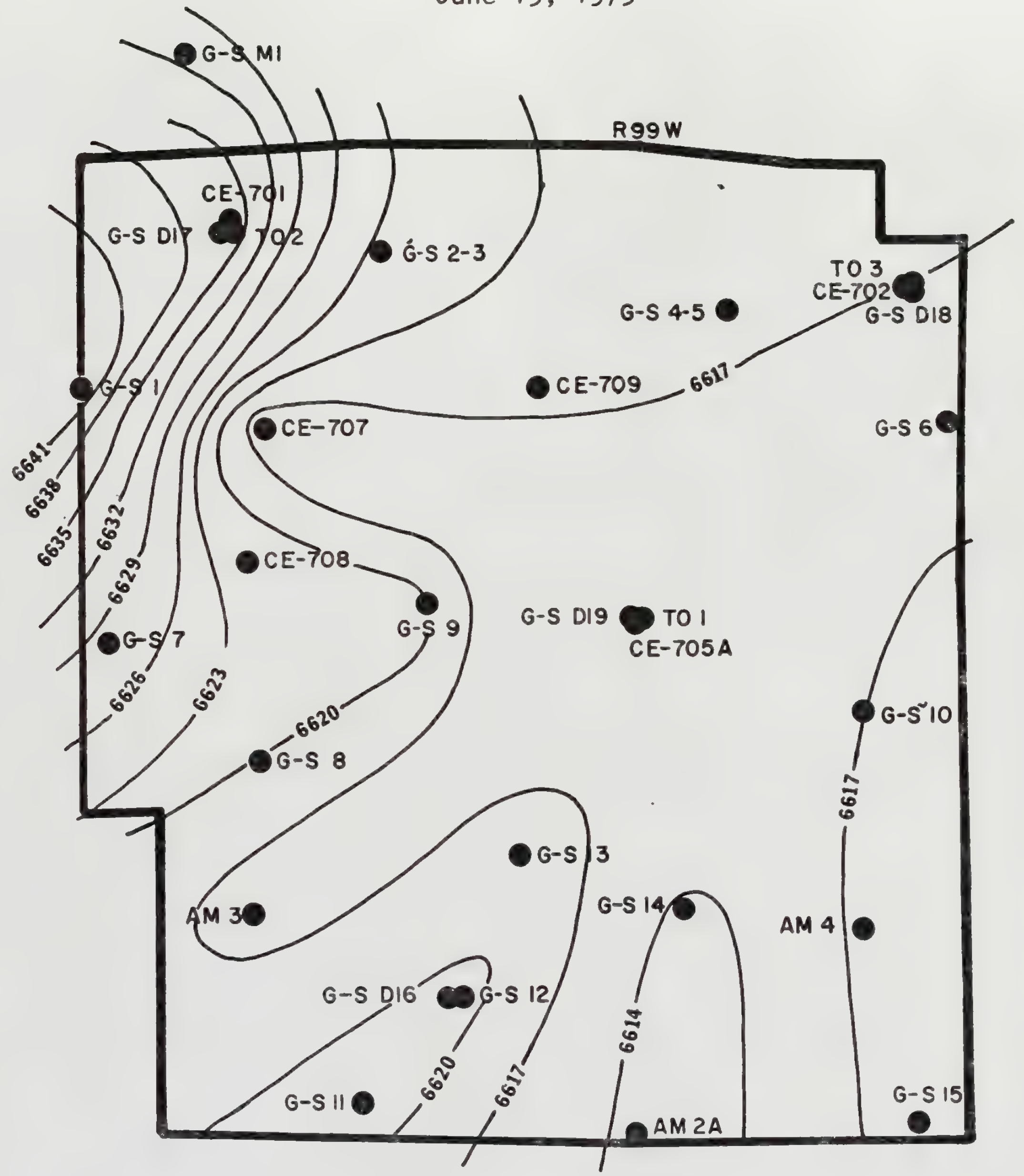
FIGURE 1.2-67

LOWER AQUIFER

PIEZOMETRIC LEVELS (ft.)

June 15, 1975


R99W
G-S MI
CE-701
G-S D17
TO2
G-S 2-3
TO 3
CE-702
G-S 4-5
G-S D18
G-S 1
CE-709
6617
CE-707
G-S 6
6641
6638
6635
6632
6629
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
6626
6623
6620
G-S 10
G-S 8
6617
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
6614
6620
6617
G-S 11
G-S 15
AM 2A

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

— CONTOUR INTERVAL 3 FT

RIO BLANCO
OIL SHALE PROJECT
Tract C-a

RBOSP [illegible]

N

SCALE: 1''=3000'

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
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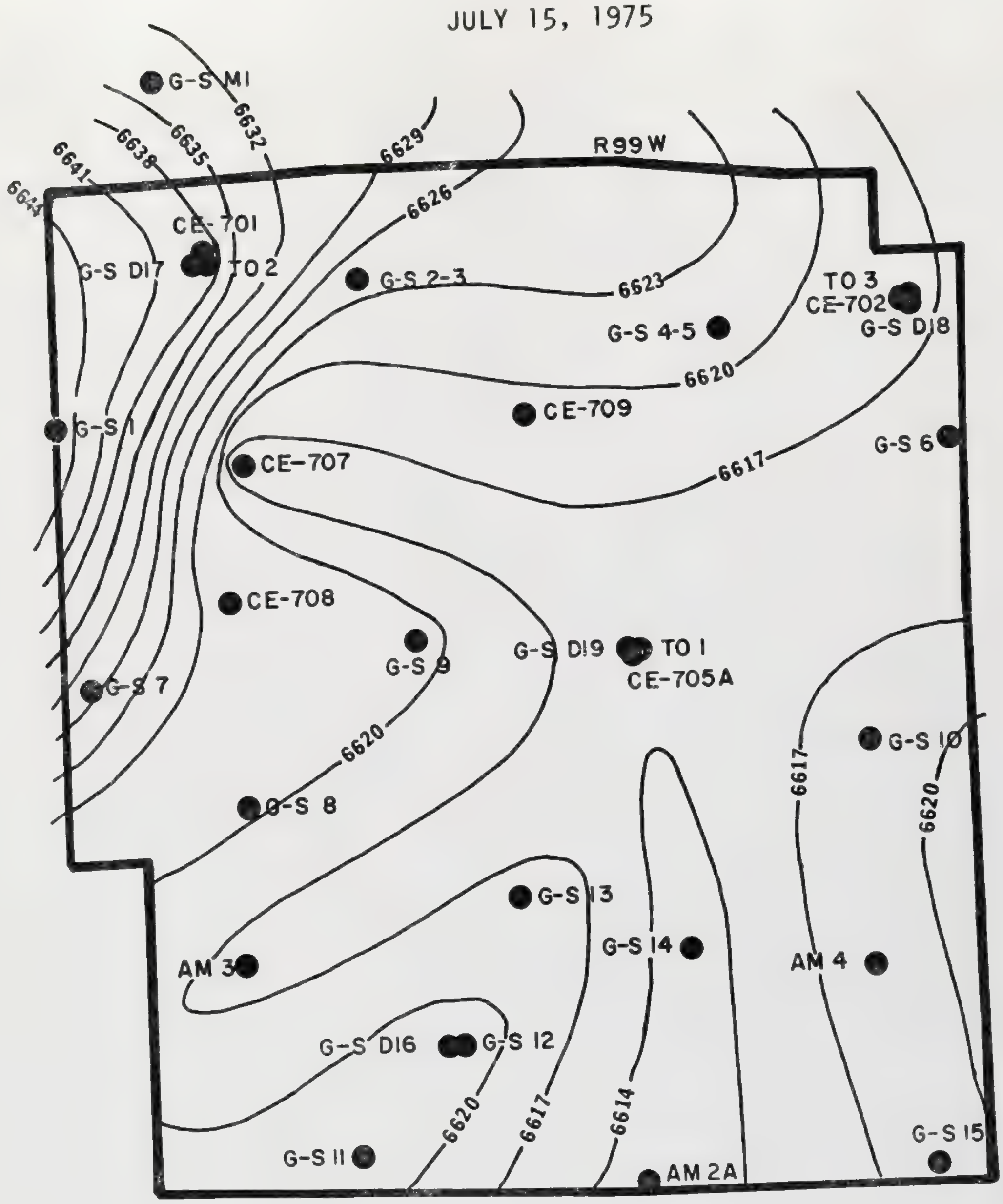
(303) 458-6201

FIGURE 1.2-68

LOWER AQUIFER

PIEZOMETRIC LEVELS (ft.)

JULY 15, 1975


G-S MI
6632
6635
6638
6641
6644
6629
6626
R99W
CE-701
G-S D17
TO 2
G-S 2-3
6623
TO 3
CE-702
G-S D18
G-S 4-5
6620
G-S 1
CE-709
G-S 6
CE-707
6617
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
6620
G-S 10
6617
6620
G-S 8
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
6620
6617
6614
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

— CONTOUR INTERVAL 3 FT

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

RBOSP PROGR

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ENGINEERING CONSULTANTS
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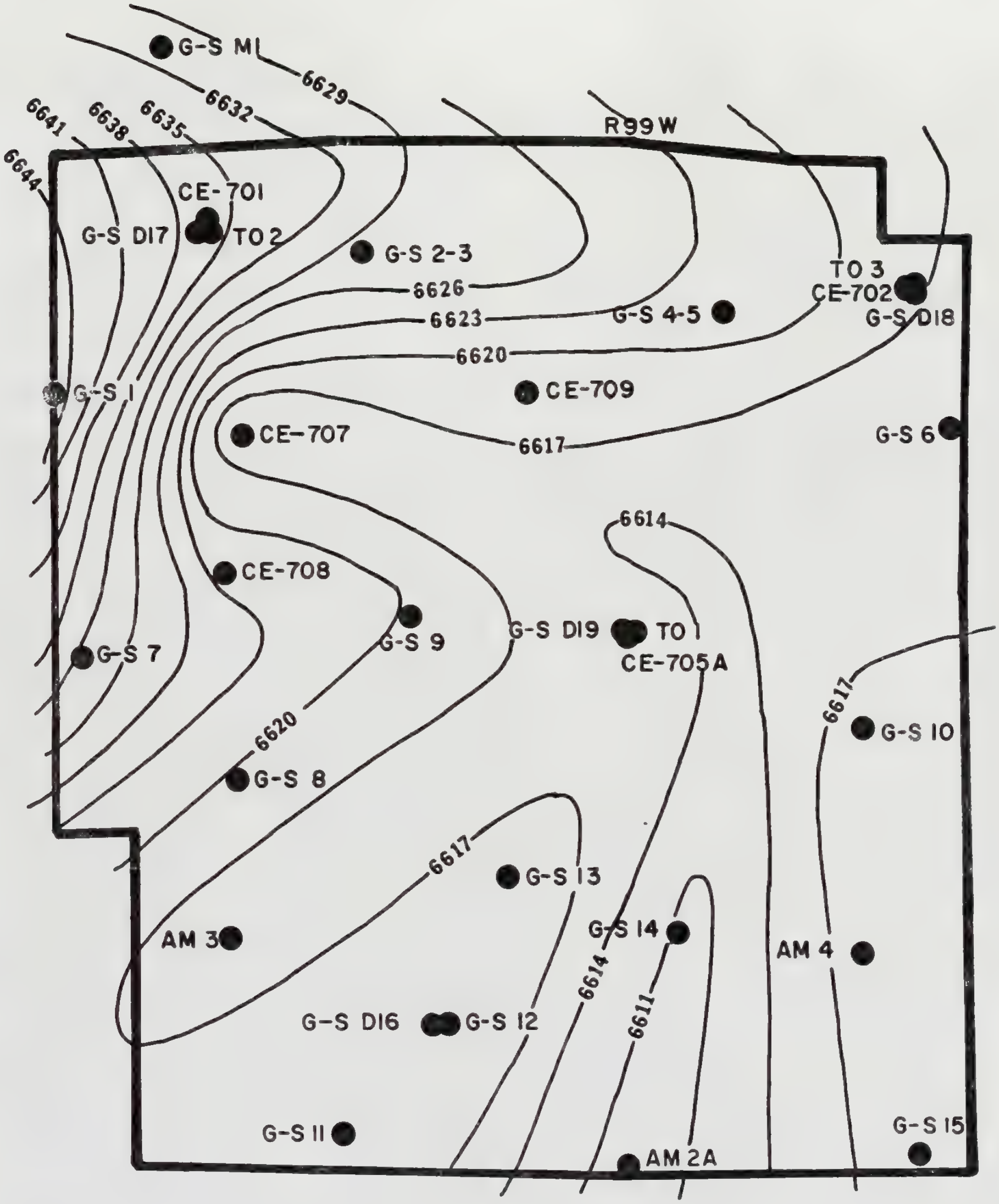
(303) 488-6201

FIGURE 1.2-69

LOWER AQUIFER
PIEZOMETRIC LEVELS (ft.)
AUGUST 30, 1975


G-S MI
6629
6632
6635
6638
6641
6644
R99W
CE-701
G-S DI7
TO 2
G-S 2-3
6626
6623
6620
6617
6614
6611
TO 3
CE-702
G-S DI8
G-S 4-5
G-S I
CE-709
CE-707
G-S 6
CE-708
G-S 9
G-S DI9
TO I
CE-705A
G-S 7
6620
6617
G-S 10
G-S 8
6617
G-S 13
G-S 14
AM 3
AM 4
6614
6611
G-S DI6
G-S 12
G-S II
G-S I5
AM 2A

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 3 FT

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
Tract C-a

RBOSP [illegible]

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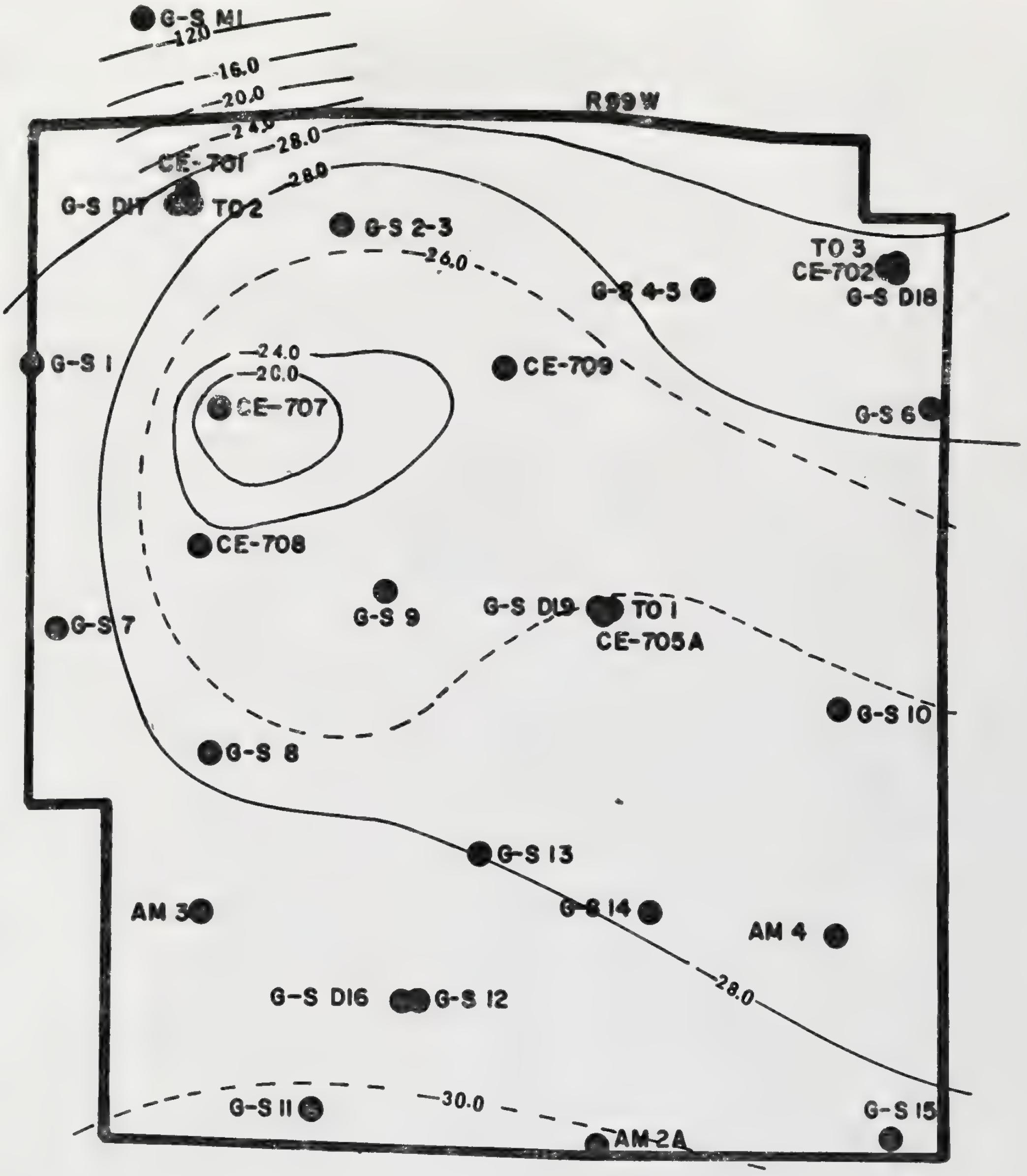
(303) 488-6201

FIGURE 1.2-70

DECREASE IN LOWER AQUIFER
PIEZOMETRIC LEVEL
JANUARY 15 to AUGUST 30, 1975


G-S MI
12.0
16.0
20.0
24.0
28.0
R99W
CE-701
28.0
G-S DIT
TO 2
G-S 2-3
26.0
TO 3
CE-702
G-S 4-5
G-S D18
G-S 1
24.0
20.0
CE-709
CE-707
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
AM 3
G-S 14
AM 4
28.0
G-S D16
G-S 12
G-S 11
30.0
G-S 15
AM 2A

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
—— CONTOUR INTERVAL 4 FT.
– – – SUPPLEMENTARY CONTOUR

N

SCALE: 1'' = 3000'

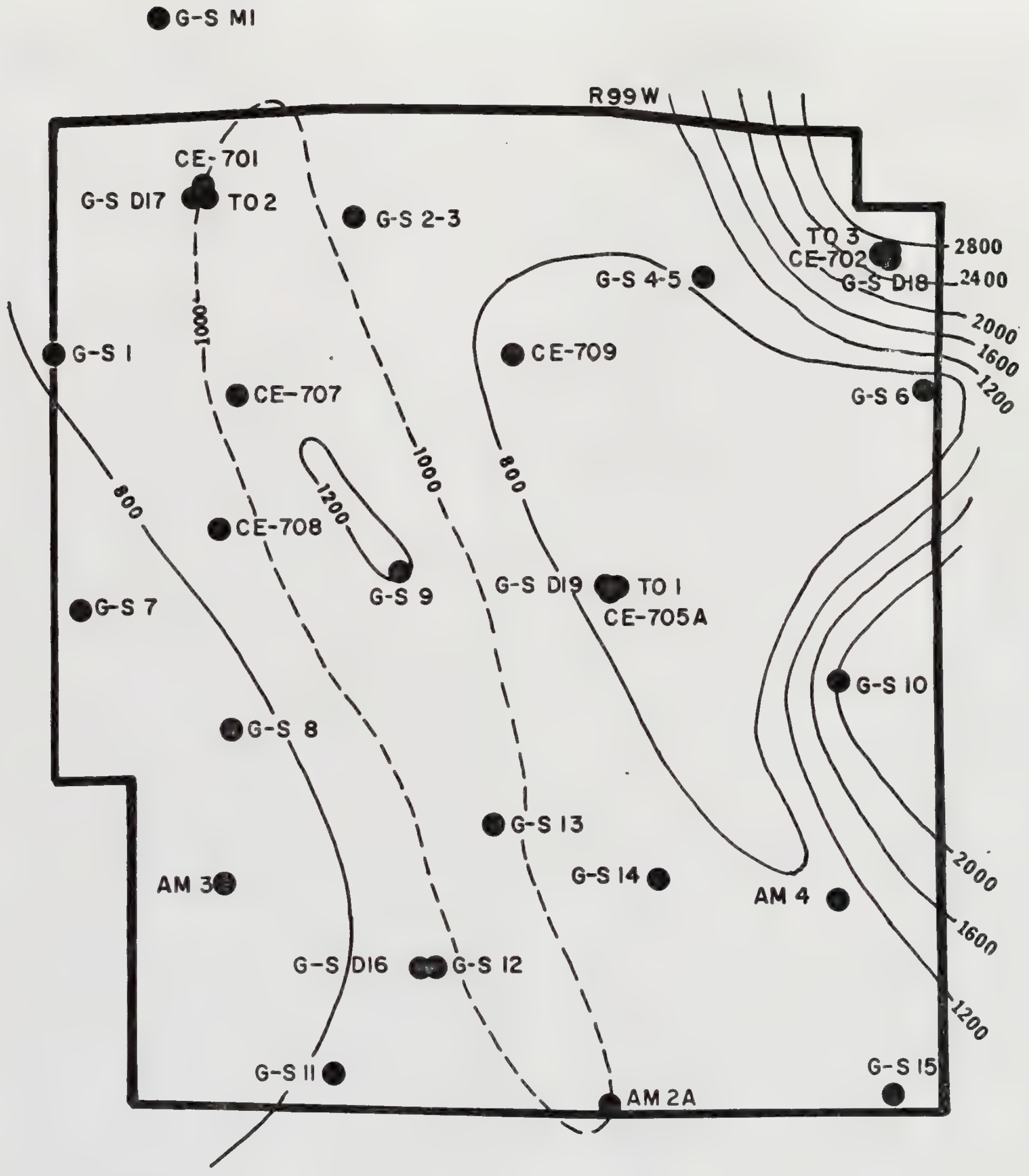
RBOSP PROGRESS REPORT

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
8420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-71

TOTAL DISSOLVED SOLIDS
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
2800
2400
2000
1600
1200
G-S 1
1000
CE-709
CE-707
G-S 6
800
1200
1000
800
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
AM 3
G-S 14
AM 4
2000
1600
G-S D16
G-S 12
1200
G-S 11
G-S 15
AM 2A

LEGEND

- ▬ TRACT OUTLINE
- ● DRILL HOLES
- ——— CONTOUR INTERVAL 400 PPM
- – – – SUPPLEMENTARY CONTOUR

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

RBOSP PRO[illegible]

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
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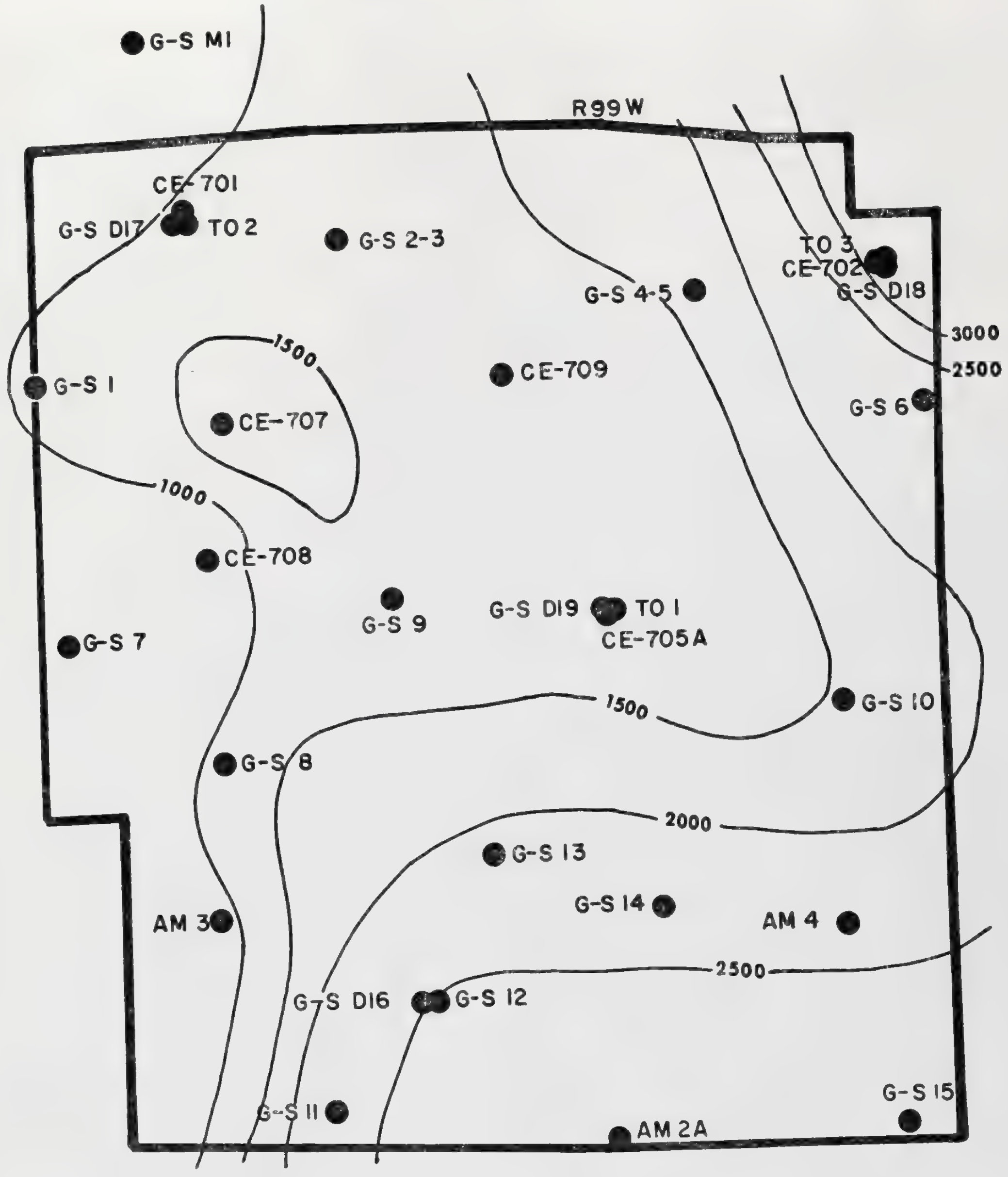
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-72

TOTAL DISSOLVED SOLIDS
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
3000
2500
1500
G-S 1
CE-709
G-S 6
CE-707
1000
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
1500
G-S 10
G-S 8
2000
G-S 13
G-S 14
AM 3
AM 4
2500
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

— CONTOUR INTERVAL 500PPM

N

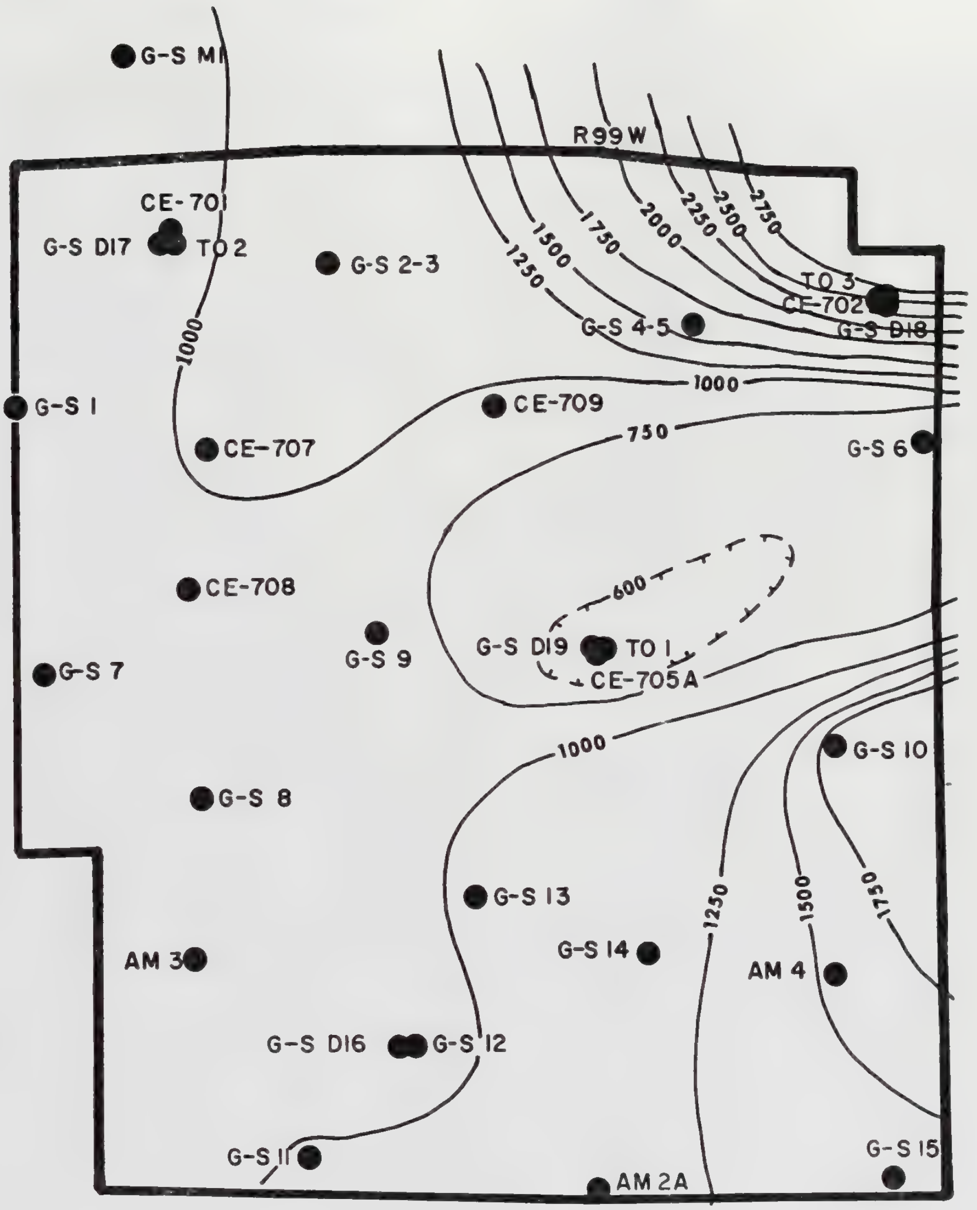
SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-73

TOTAL DISSOLVED SOLIDS
UPPER AQUIFER
MONITORING PROGRAM
APRIL 1975 ANALYSIS (ppm)


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
1250
1500
1750
2000
2250
2500
2750
TO 3
CE-702
G-S D18
G-S 4-5
1000
G-S 1
CE-709
CE-707
750
G-S 6
CE-708
600
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
1000
G-S 10
G-S 8
G-S 13
1250
1500
1750
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

—— CONTOUR INTERVAL 250 PPM

– – – SUPPLEMENTARY CONTOUR

N

SCALE: 1'' = 3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
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(303) 458-6201

FIGURE 1.2-74

TOTAL DISSOLVED SOLIDS
UPPER AQUIFER
MONITORING PROGRAM
MAY 1975 ANALYSIS (ppm)

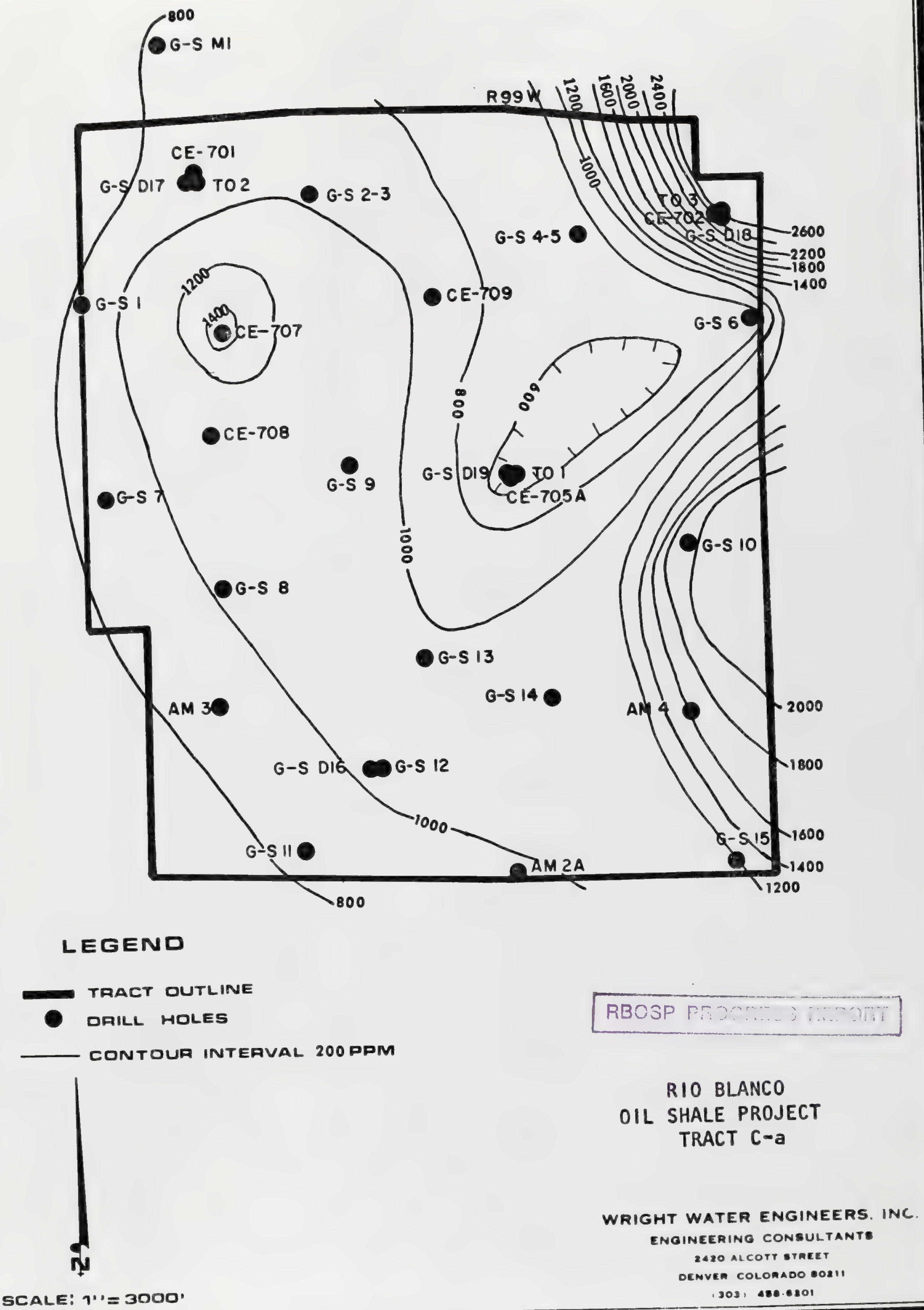
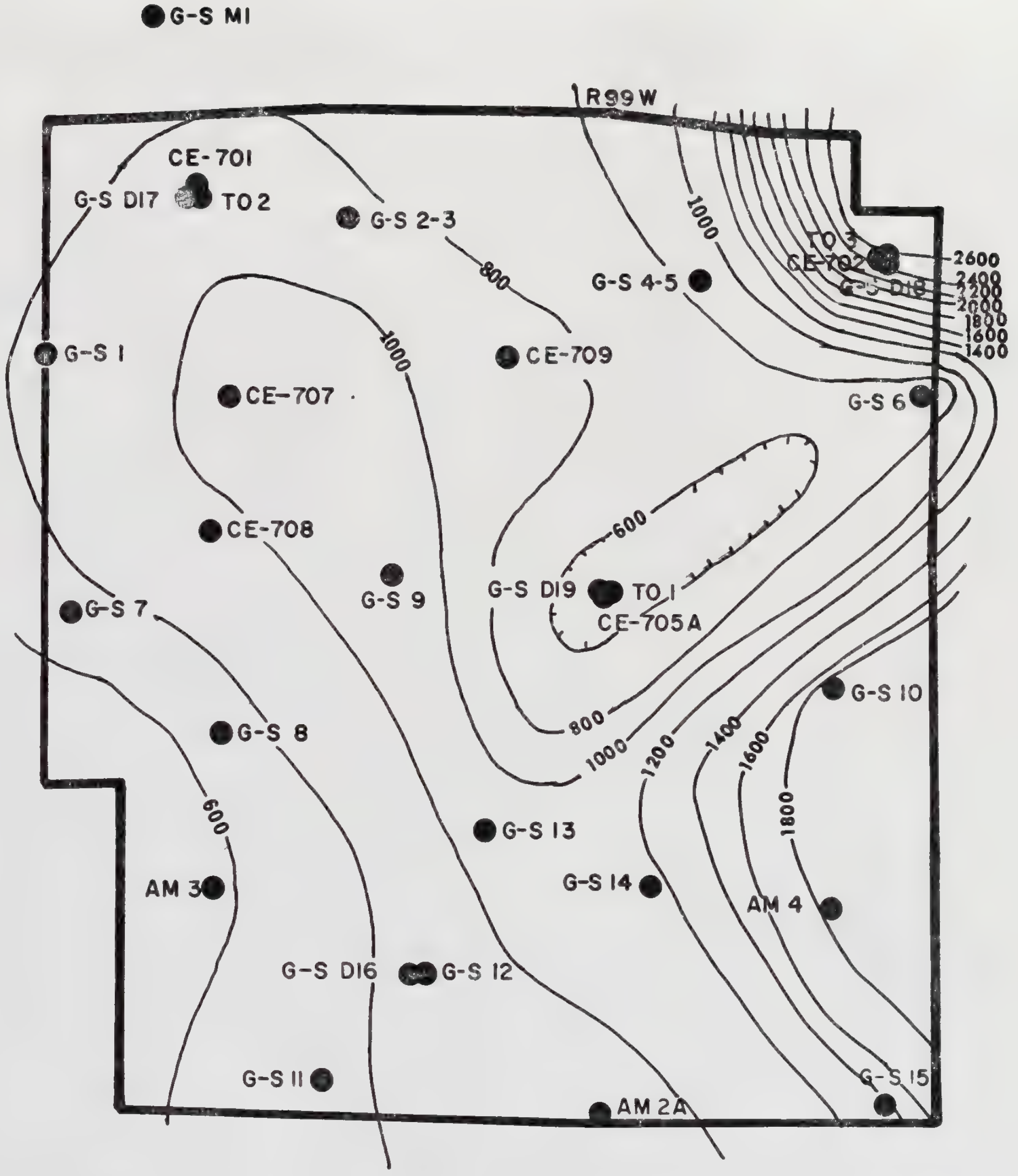

800
G-S M1
R99W
1200
1600
2000
2400
1000
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
2600
2200
1800
1400
G-S 4-5
G-S 1
1200
1400
CE-707
CE-709
G-S 6
800
600
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
1000
G-S 10
G-S 8
G-S 13
G-S 14
AM 3
AM 4
2000
1800
G-S D16
G-S 12
1000
1600
G-S 15
1400
G-S 11
AM 2A
1200
800
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 200 PPM
N
SCALE: 1'' = 3000'
RIO BLANCO
OIL SHALE PROJECT
TRACT C-a
WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER COLORADO 80211
(303) 458-6201

FIGURE 1.2-75

TOTAL DISSOLVED SOLIDS
UPPER AQUIFER
MONITORING PROGRAM
JUNE 1975 ANALYSIS (ppm)


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
800
1000
TO 3
CE-702
G-S D18
2600
2400
2200
2000
1800
1600
1400
G-S 4-5
G-S 1
CE-709
CE-707
G-S 6
CE-708
600
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
800
1000
1200
1400
1600
G-S 8
1800
600
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 200 PPM

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

RBOSP PROGRESS REPORT

WRIGHT WATER ENGINEERS, INC
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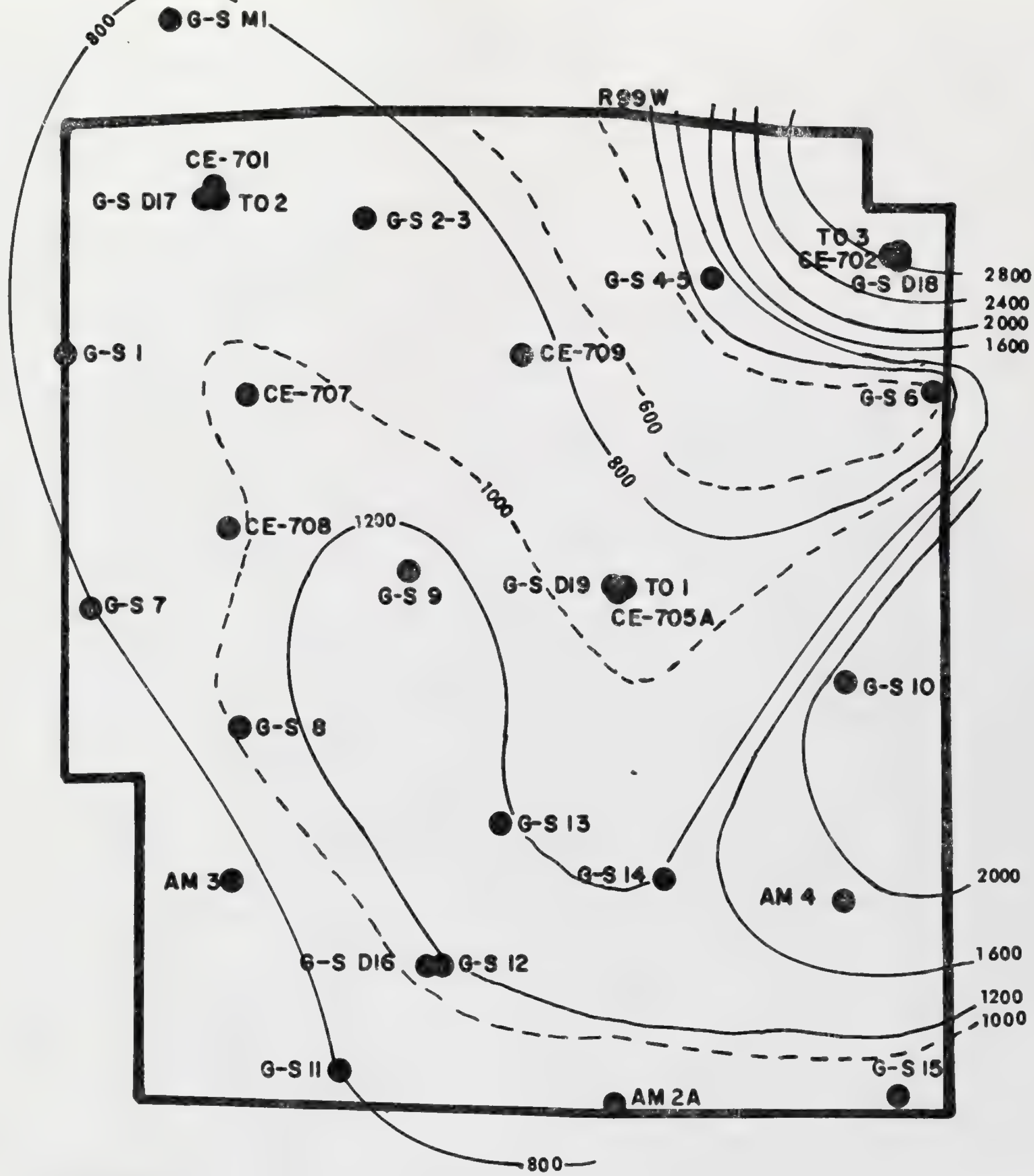
2420 ALCOTT STREET
DENVER COLORADO 80211
(303) 458-6201

FIGURE 1.2-76

TOTAL DISSOLVED SOLIDS
UPPER AQUIFER
MONITORING PROGRAM
JULY 1975 ANALYSIS (ppm)


G-S M1
800
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
2800
2400
2000
1600
G-S 1
CE-709
CE-707
G-S 6
600
800
1000
CE-708
1200
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
G-S 14
AM 3
AM 4
2000
G-S D16
G-S 12
1600
1200
1000
G-S 11
G-S 15
AM 2A
800

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
—— CONTOUR INTERVAL 400 PPM
- - - SUPPLEMENTAL CONTOUR

N

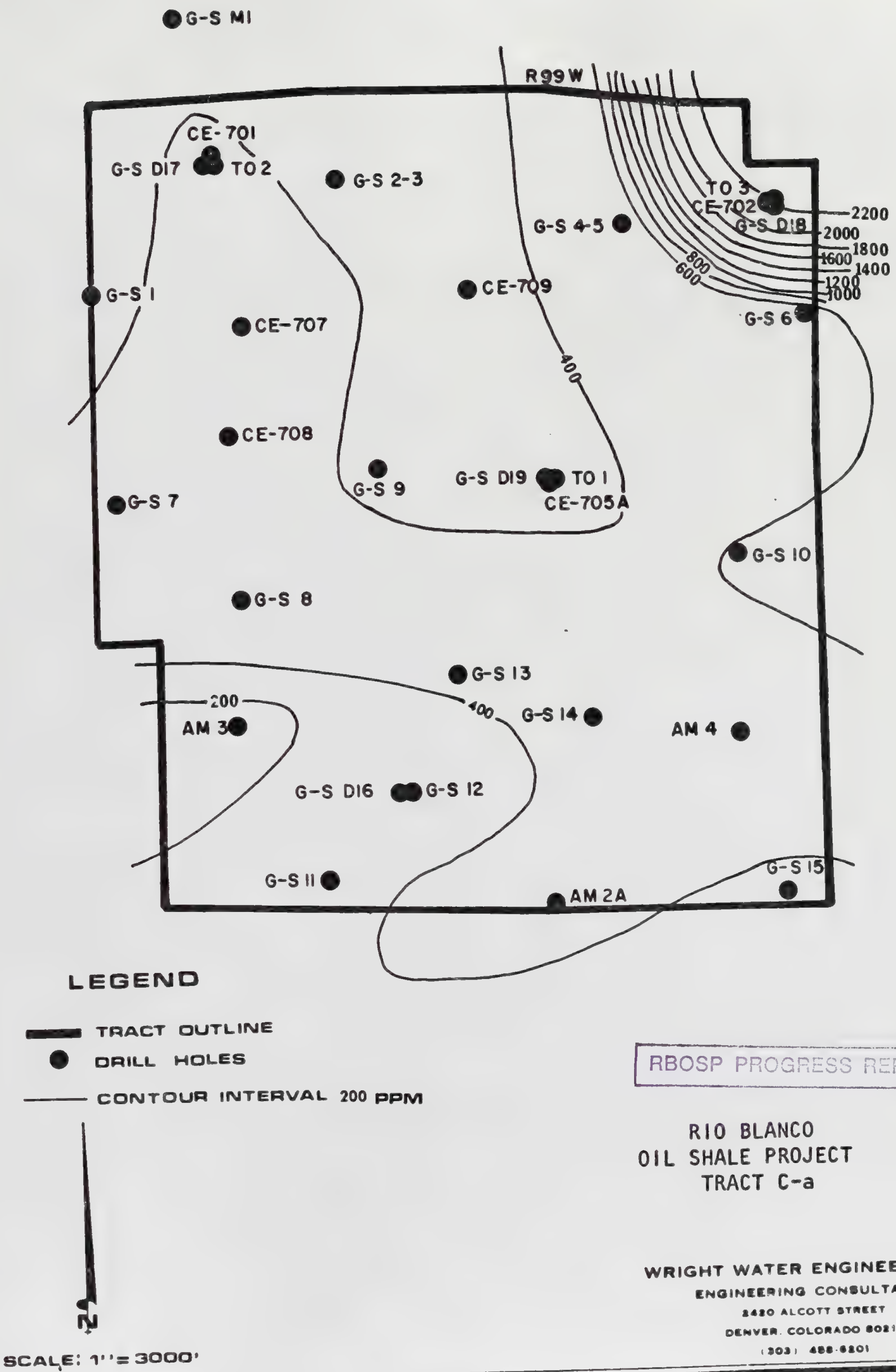
SCALE: 1'' = 3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER COLORADO 80211
(303) 458-6201

FIGURE 1.2-77

ALKALINITY
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
2200
2000
1800
1600
1400
1200
1000
800
600
G-S 1
CE-709
CE-707
G-S 6
400
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
200
400
AM 3
G-S 14
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 200 PPM
N
SCALE: 1"=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
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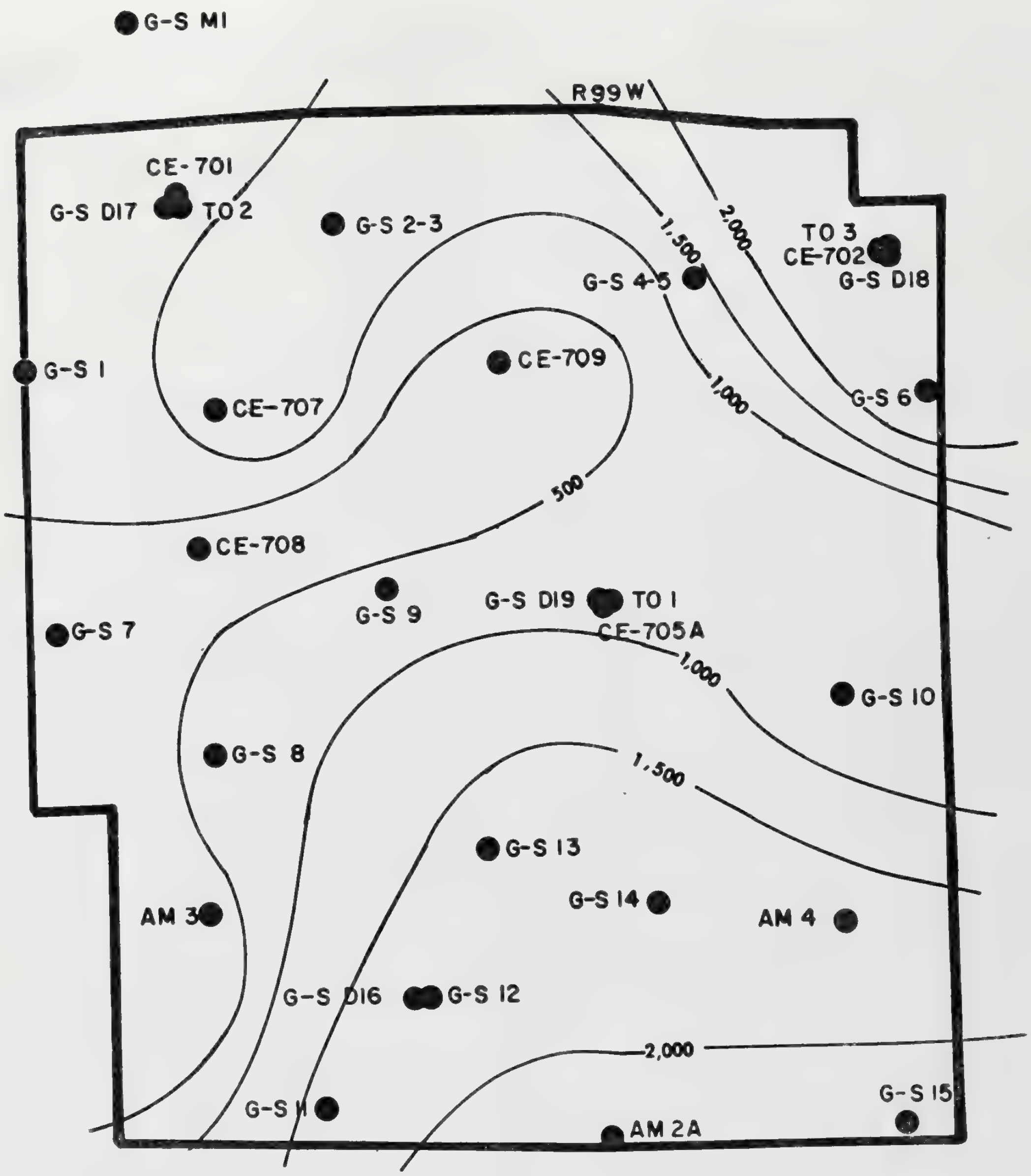
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-78

ALKALINITY
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
1,500
2,000
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
1,000
G-S 6
500
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
1,000
G-S 10
G-S 8
1,500
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
2,000
G-S 15
G-S 11
AM 2A

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 500 PPM

SCALE: 1''= 3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
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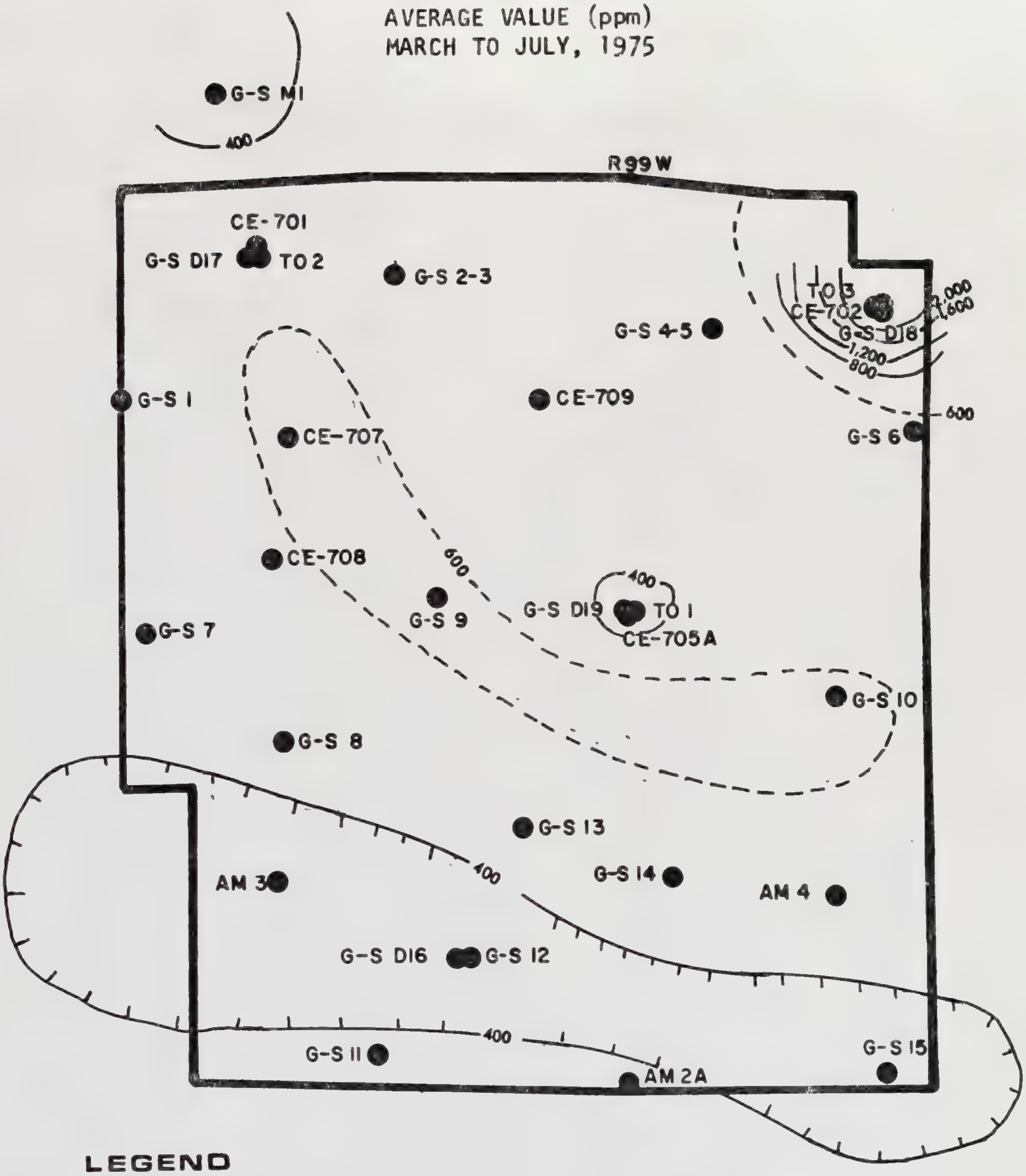
DENVER COLORADO 80211
(303) 488-6201

FIGURE 1.2-79

BICARBONATE
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
400
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
2,000
1,600
G-S D18
1,200
800
G-S 4-5
600
G-S 6
G-S 1
CE-709
CE-707
CE-708
600
400
G-S D19
TO 1
CE-705A
G-S 9
G-S 7
G-S 10
G-S 8
G-S 13
400
G-S 14
AM 3
AM 4
G-S D16
G-S 12
400
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
—— CONTOUR INTERVAL 400 PPM
- - - - SUPPLEMENTARY 600 PPM COUNTOUR

N

SCALE: 1'' = 3000'

RBOSP PROGRESS REPORT

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
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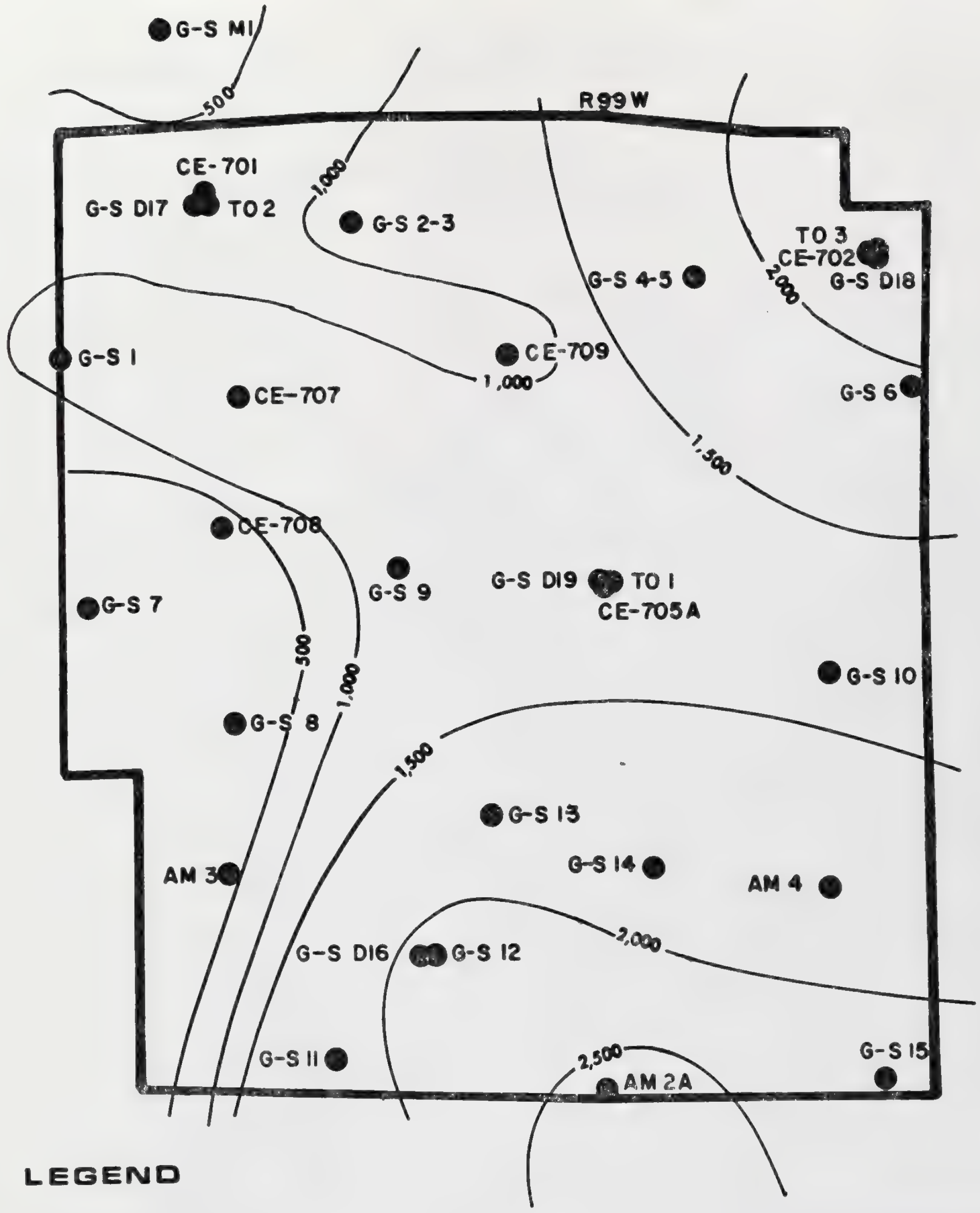
(303) 458-6201

FIGURE 1.2-80

BICARBONATE
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
500
R99W
1,000
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
2,000
G-S 4-5
G-S 1
CE-709
1,000
CE-707
G-S 6
1,500
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
500
1,000
G-S 10
G-S 8
1,500
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
2,000
G-S 11
2,500
AM 2A
G-S 15

LEGEND

- TRACT OUTLINE
- ● DRILL HOLES
- CONTOUR INTERVAL 500 PPM

SCALE: 1''= 3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
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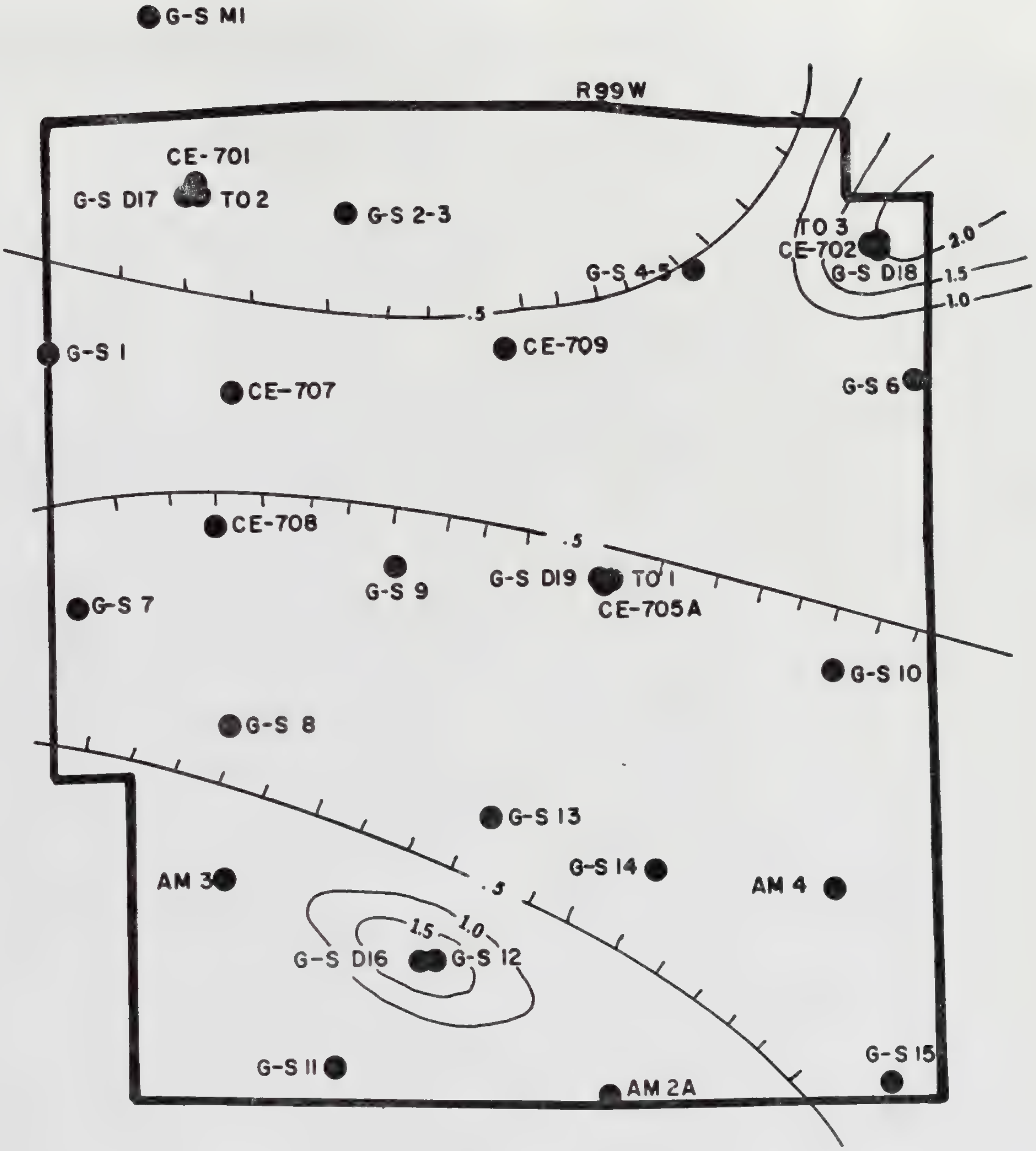
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-81

BORON
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
2.0
1.5
1.0
G-S 4-5
.5
G-S 1
CE-709
CE-707
G-S 6
CE-708
.5
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
G-S 14
AM 3
AM 4
.5
1.5
1.0
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL .5 PPM

N

SCALE: 1''=3000'

RBOSP PROGRESS REPORT

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
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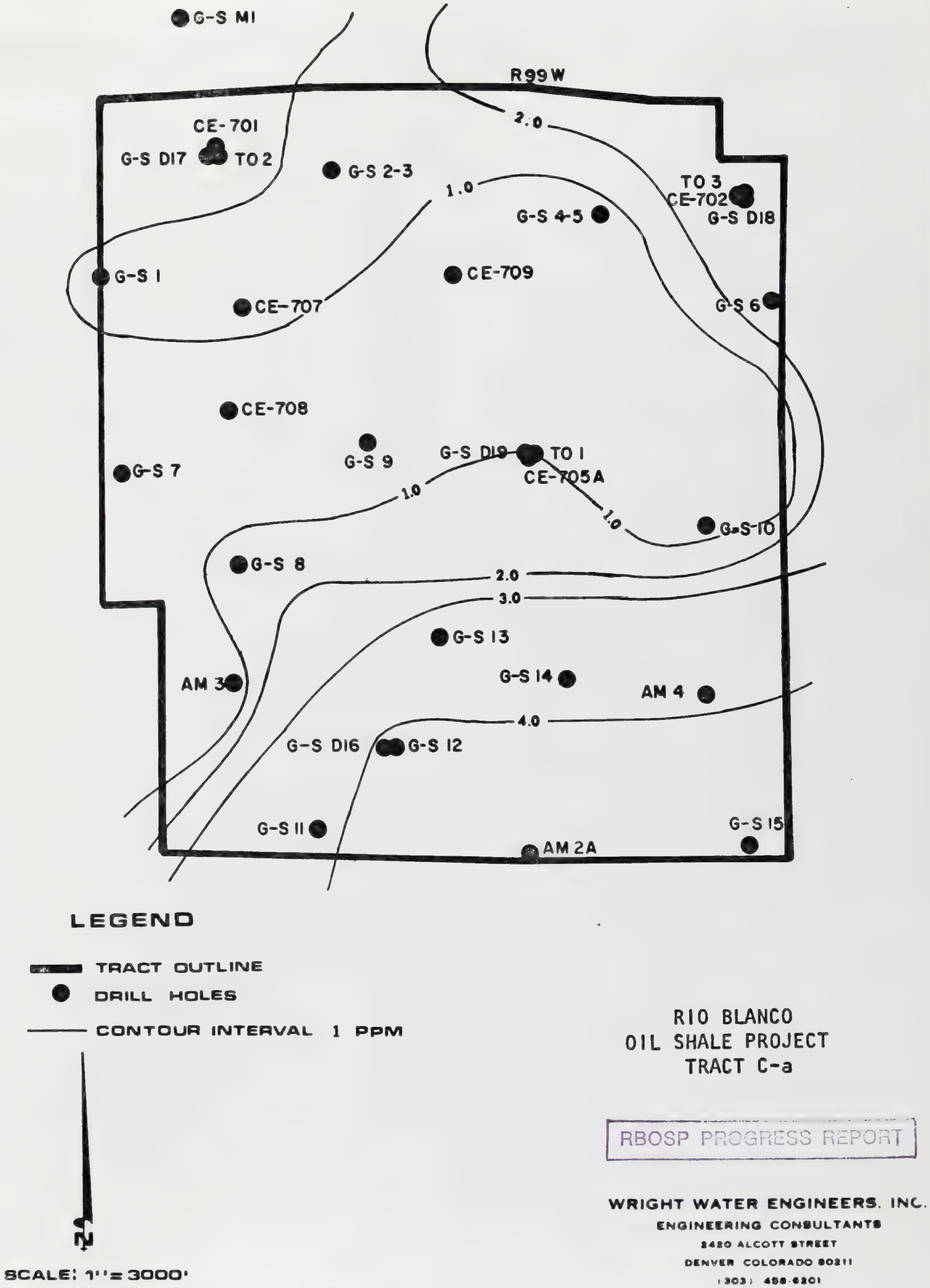
DENVER COLORADO 80211
(303) 458-6201

FIGURE 1.2-82

BORON
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
2.0
CE-701
G-S D17
TO 2
G-S 2-3
1.0
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
1.0
1.0
G-S 10
G-S 8
2.0
3.0
G-S 13
G-S 14
AM 3
AM 4
4.0
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 1 PPM
N
SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
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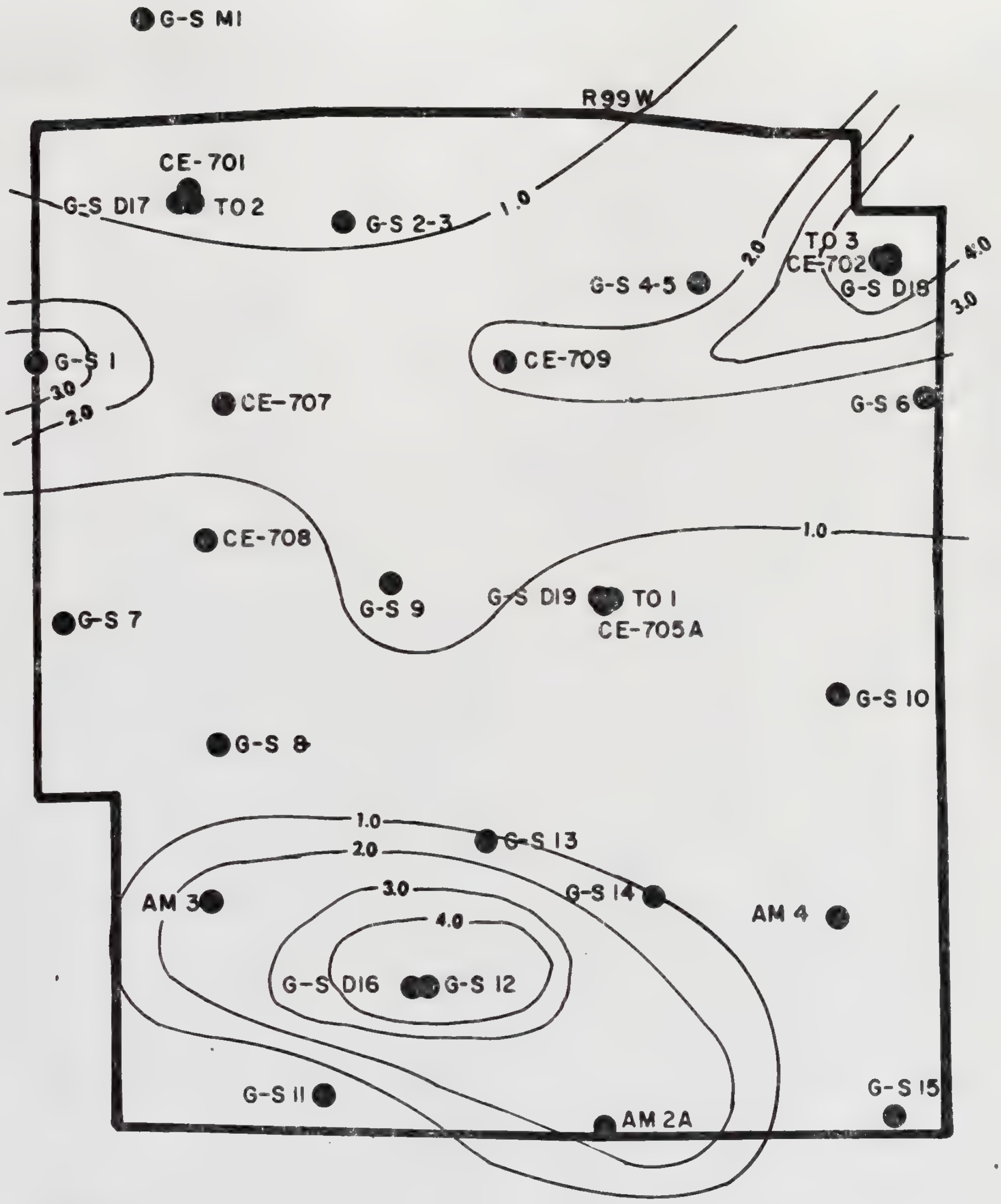
DENVER COLORADO 80211
(303) 458-6201

FIGURE 1.2-83

BORON
UPPER AQUIFER
MONITORING PROGRAM
HIGH VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
1.0
TO 3
CE-702
G-S D18
2.0
4.0
3.0
G-S 4-5
G-S 1
3.0
2.0
CE-709
CE-707
G-S 6
CE-708
1.0
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
1.0
G-S 13
2.0
3.0
AM 3
G-S 14
AM 4
4.0
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 1.0 PPM

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
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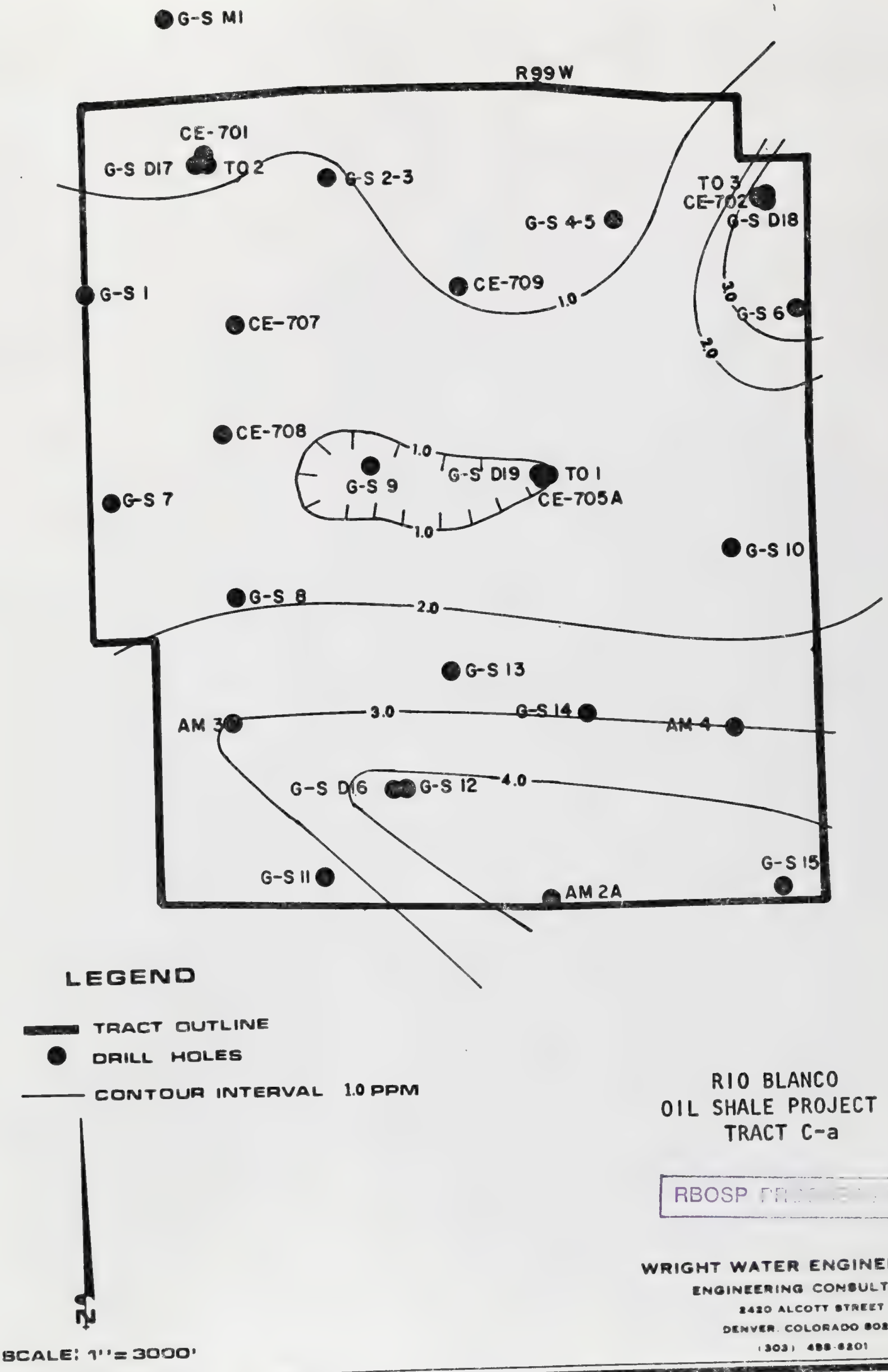
DENVER, COLORADO 80211
(303) 488-6201

FIGURE 1.2-84

BORON
LOWER AQUIFER
MONITORING PROGRAM
HIGH VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
1.0
CE-707
3.0
G-S 6
2.0
CE-708
1.0
G-S D19
TO 1
G-S 9
CE-705A
G-S 7
1.0
G-S 10
G-S 8
2.0
G-S 13
3.0
G-S 14
AM 3
AM 4
G-S D16
G-S 12
4.0
G-S 15
G-S 11
AM 2A
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 1.0 PPM
N
SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

RBOSP [illegible]

WRIGHT WATER ENGINEERS, INC.
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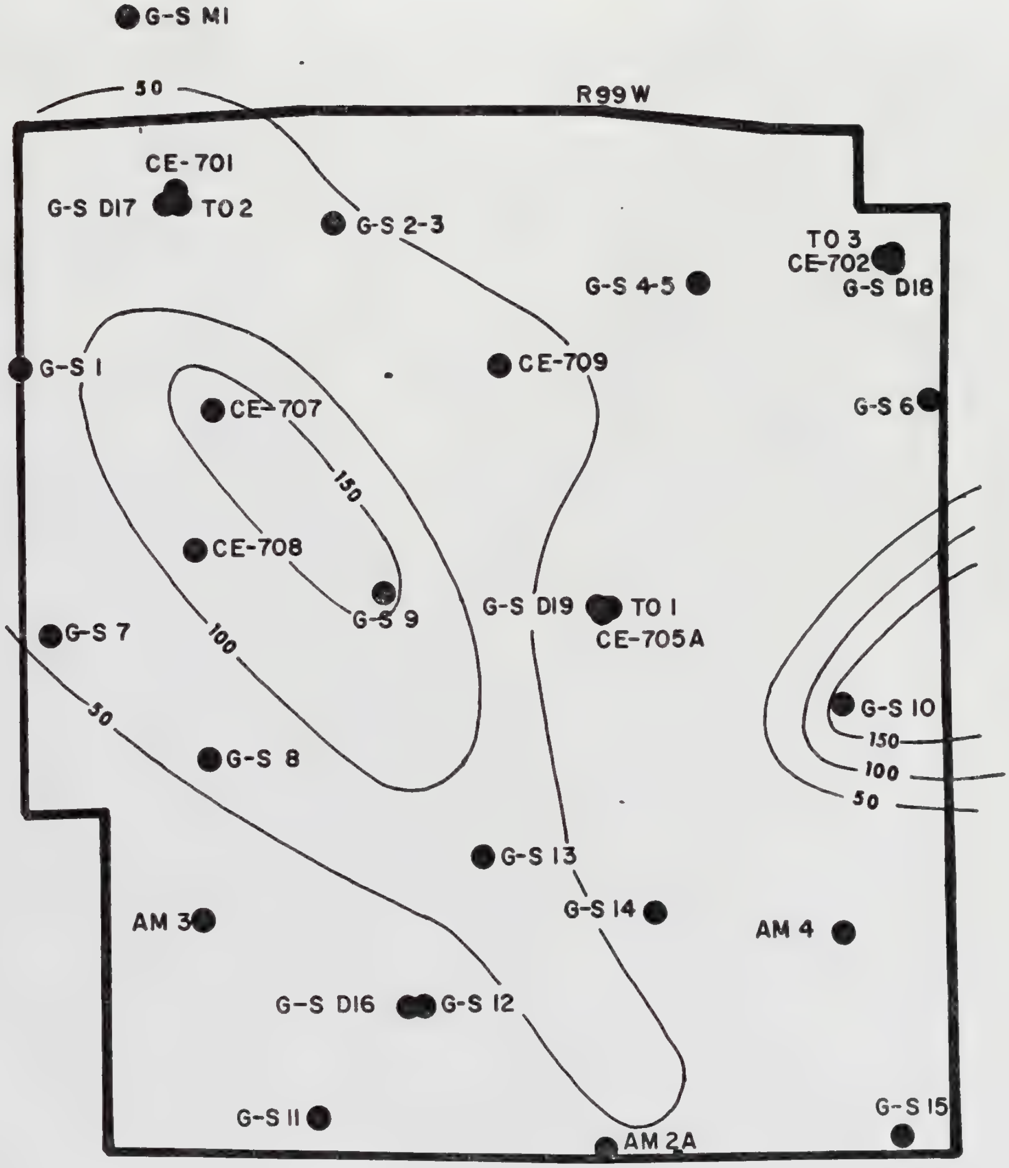
FIGURE 1.2-85

CALCIUM
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
50
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
G-S 6
150
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
100
50
G-S 10
150
100
50
G-S 8
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
—— CONTOUR INTERVAL 50 PPM

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

RBOSP PR

WRIGHT WATER ENGINEERS, INC.
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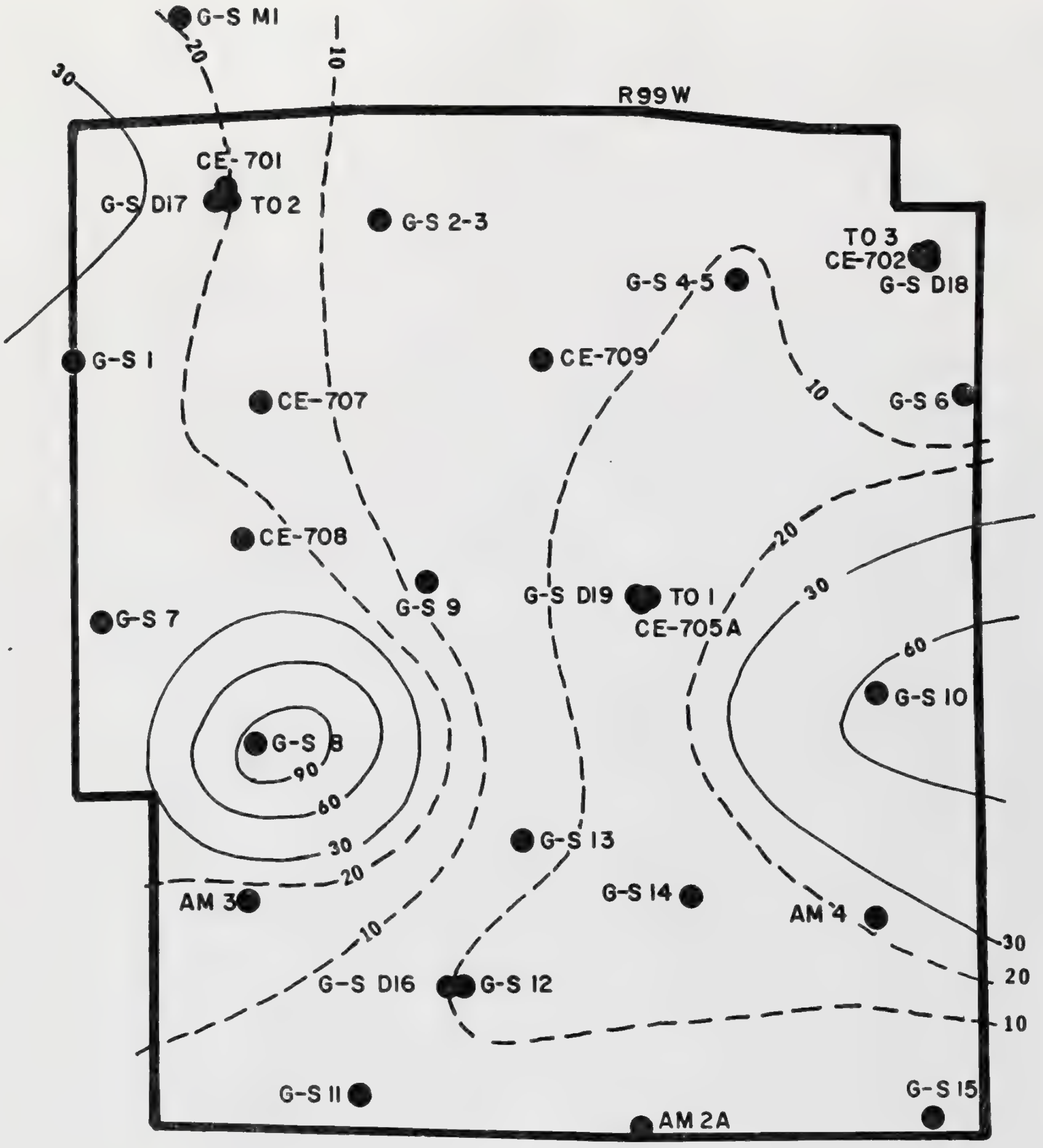
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-86

CALCIUM
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
30
20
10
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
10
G-S 6
20
CE-708
G-S 9
G-S D19
TO 1
CE-705A
30
G-S 7
60
G-S 10
G-S 8
90
60
30
20
G-S 13
AM 3
G-S 14
AM 4
10
30
20
G-S D16
G-S 12
10
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 30 PPM
- - - SUPPLEMENTARY CONTOUR

N

SCALE: 1" = 3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

RBOSP PROGRESS REPORT

WRIGHT WATER ENGINEERS, INC.
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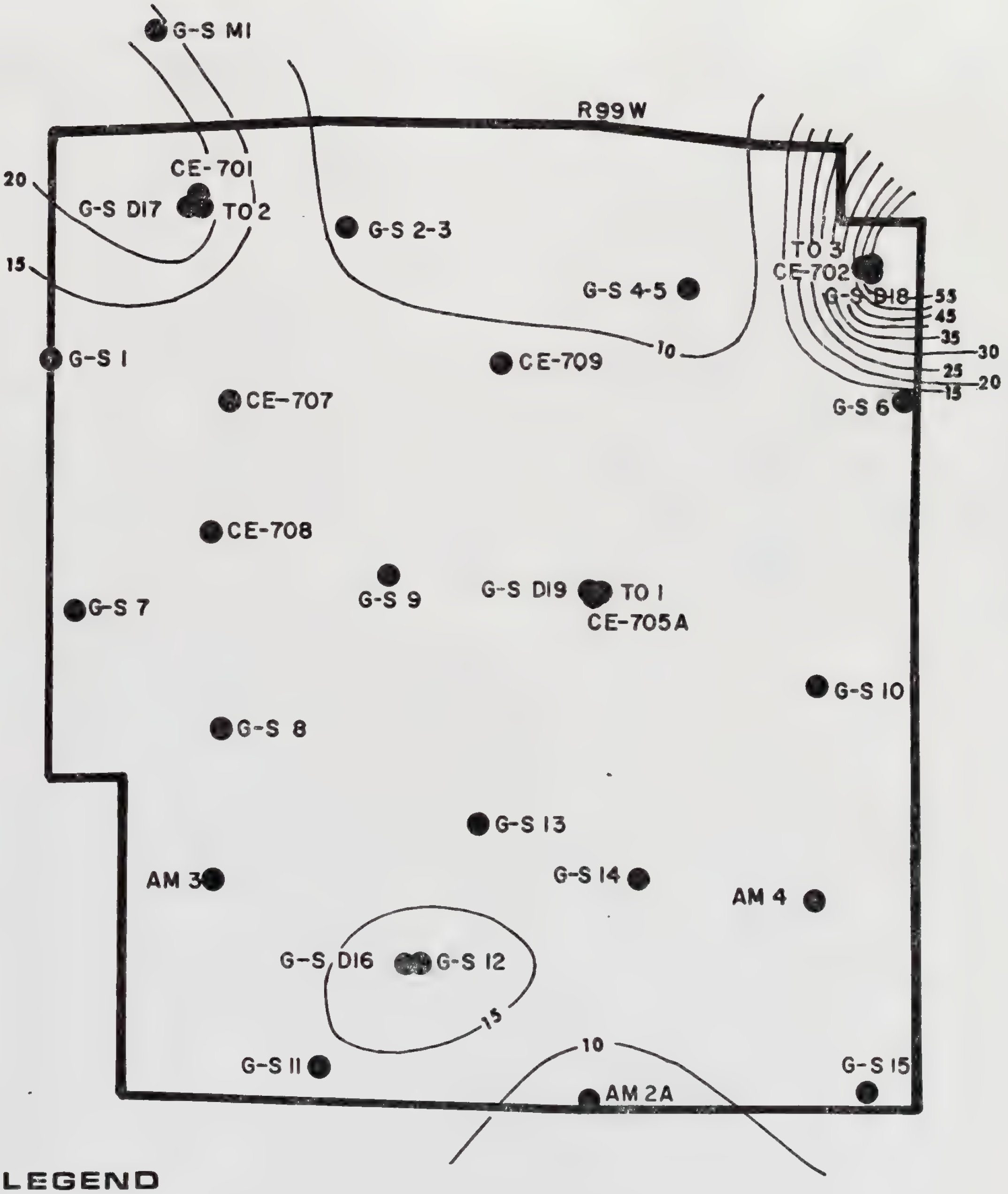
(303) 458-6201

FIGURE 1.2-87

CHLORIDE
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
R99W
CE-701
20
G-S D17
TO 2
G-S 2-3
15
TO 3
CE-702
G-S 4-5
G-S D18
55
45
35
30
25
20
15
10
G-S 1
CE-709
CE-707
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
15
10
G-S 11
G-S 15
AM 2A

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

— CONTOUR INTERVAL 5 PPM

N

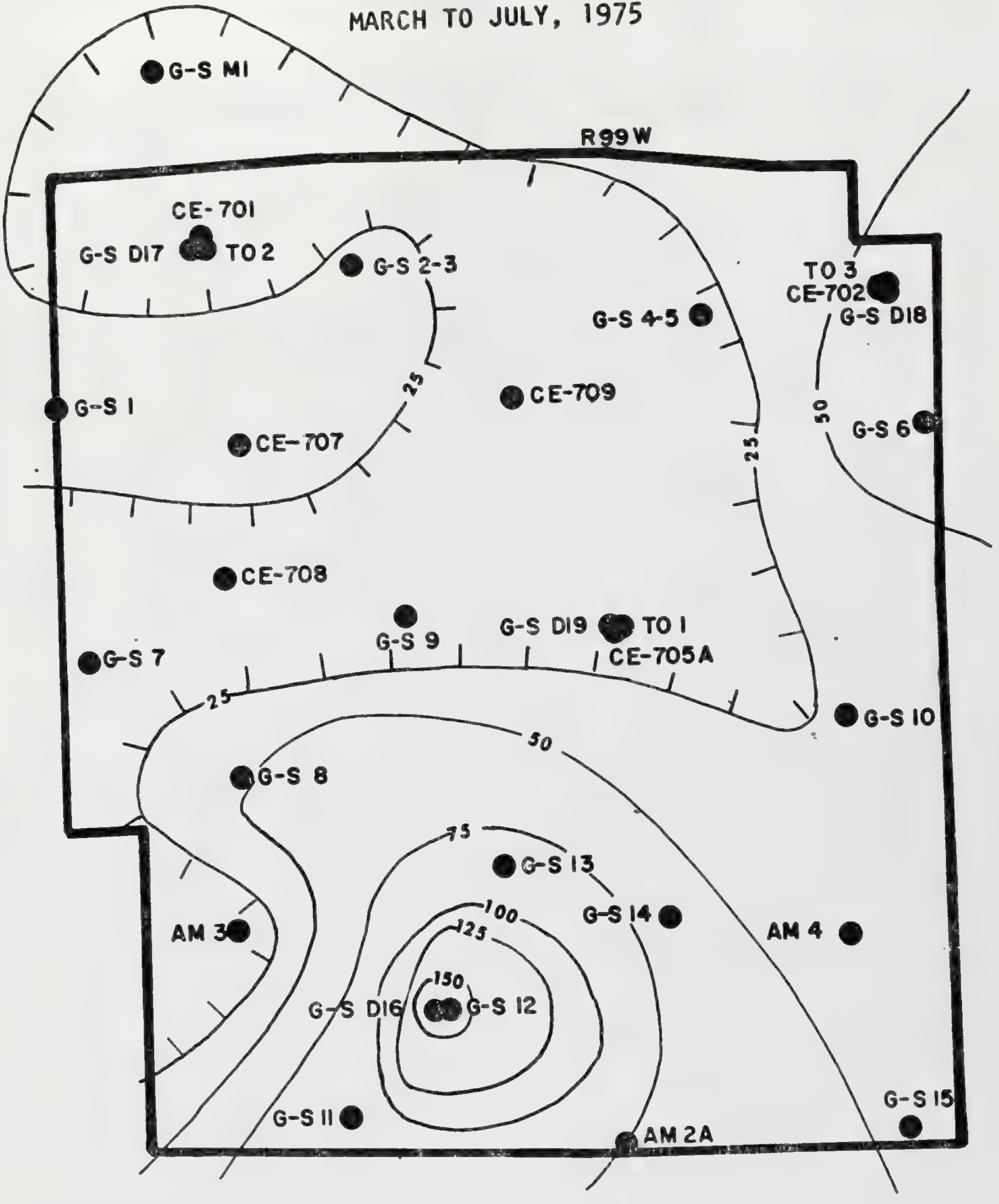
SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-88

CHLORIDE
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
CE-709
25
G-S 1
CE-707
25
50
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
25
G-S 10
50
G-S 8
75
G-S 13
100
G-S 14
AM 4
AM 3
125
150
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 25 PPM

N

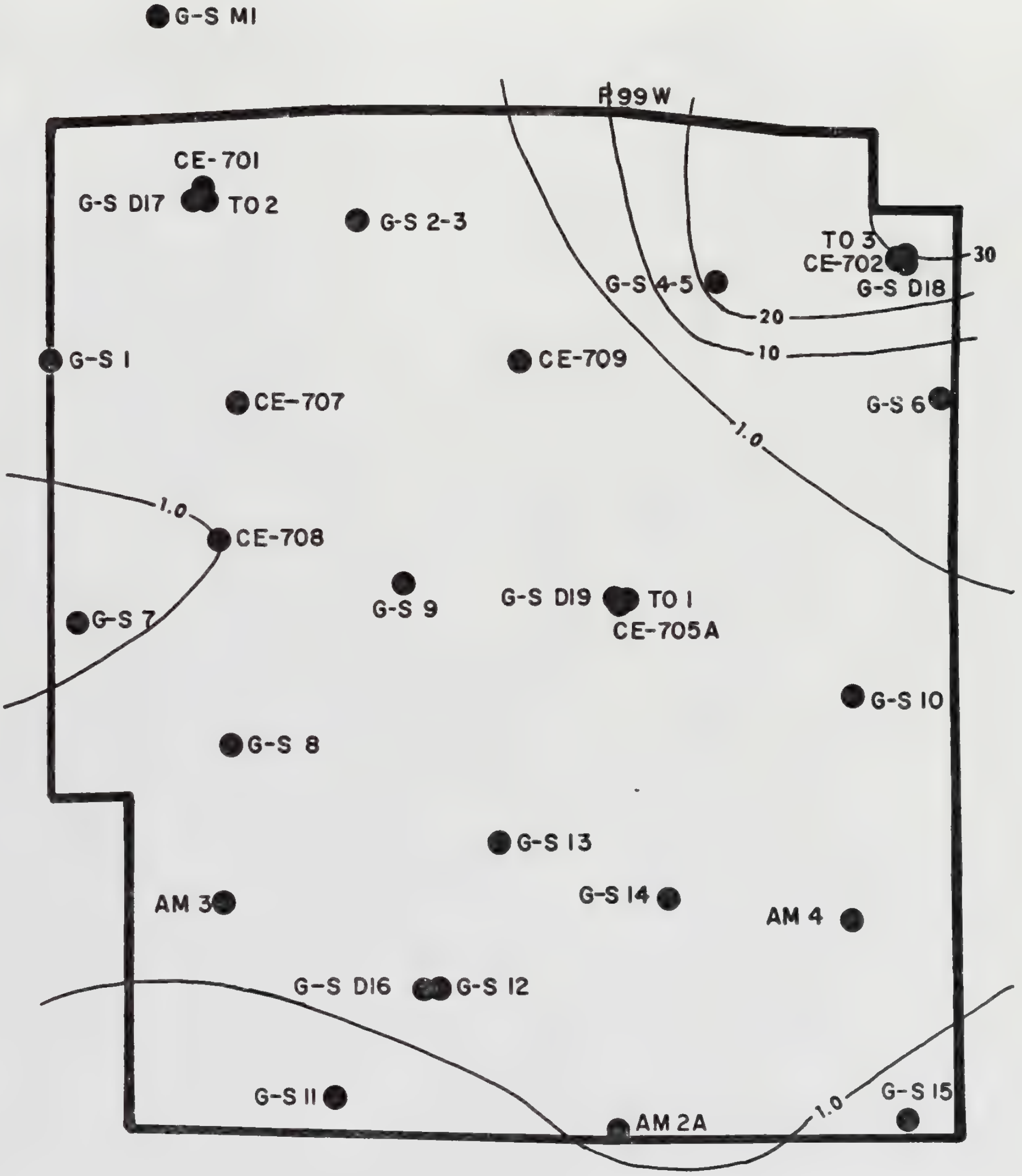
SCALE: 1" = 3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-89

FLUORIDE
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
30
G-S D18
G-S 4-5
20
10
G-S 1
CE-709
CE-707
G-S 6
1.0
1.0
CE-708
G-S 7
G-S 9
G-S D19
TO 1
CE-705A
G-S 10
G-S 8
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
1.0
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 10 PPM

N

SCALE: 1''=3000'

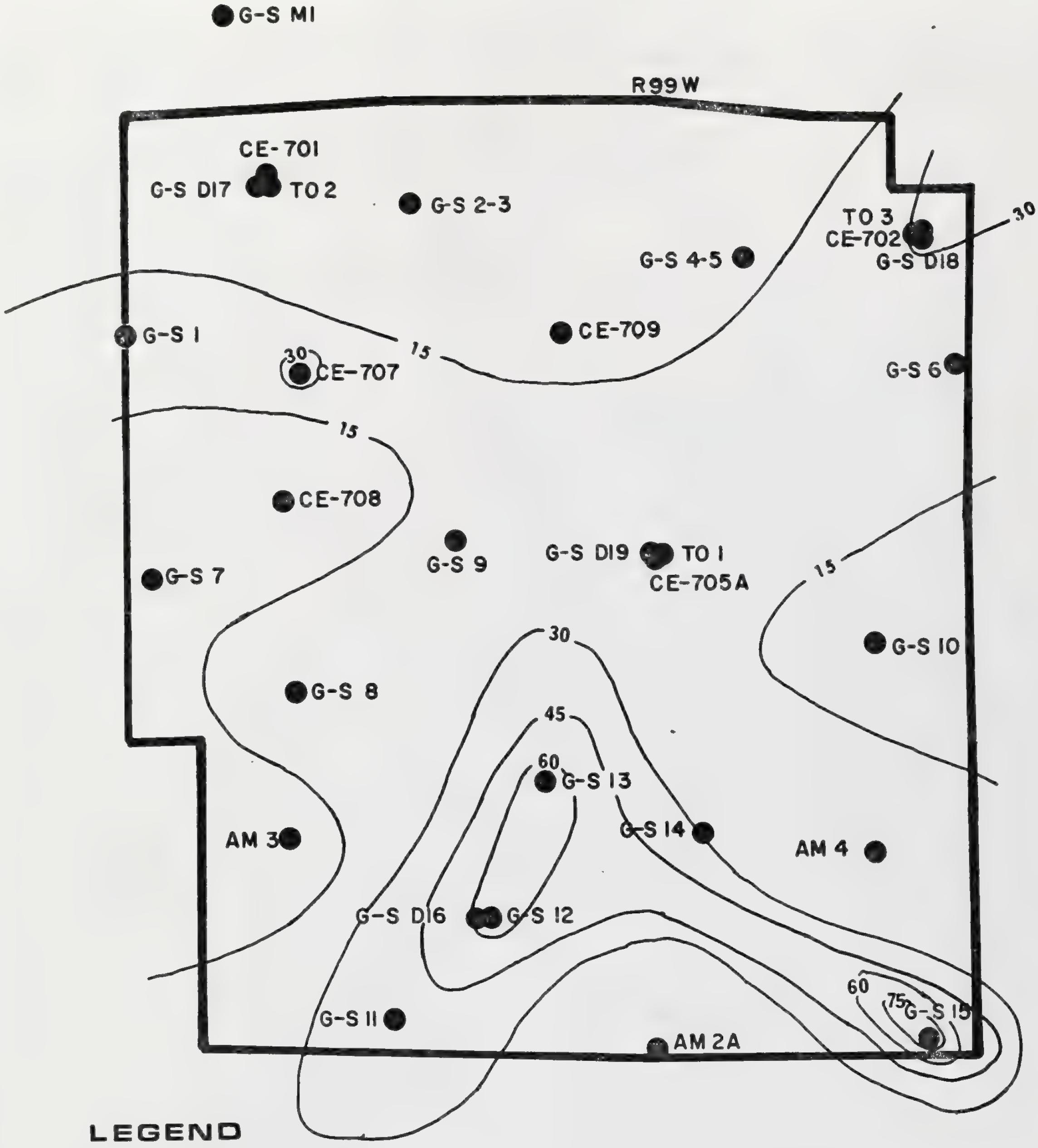
RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

RBOSP [illegible]

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-90

FLUORIDE
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
30
G-S 4-5
G-S I
CE-709
30
CE-707
15
G-S 6
15
CE-708
G-S 9
G-S D19
TO I
CE-705A
G-S 7
15
30
G-S 10
G-S 8
45
60
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
60
75
G-S 15
G-S II
AM 2A

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

— CONTOUR INTERVAL 15 PPM

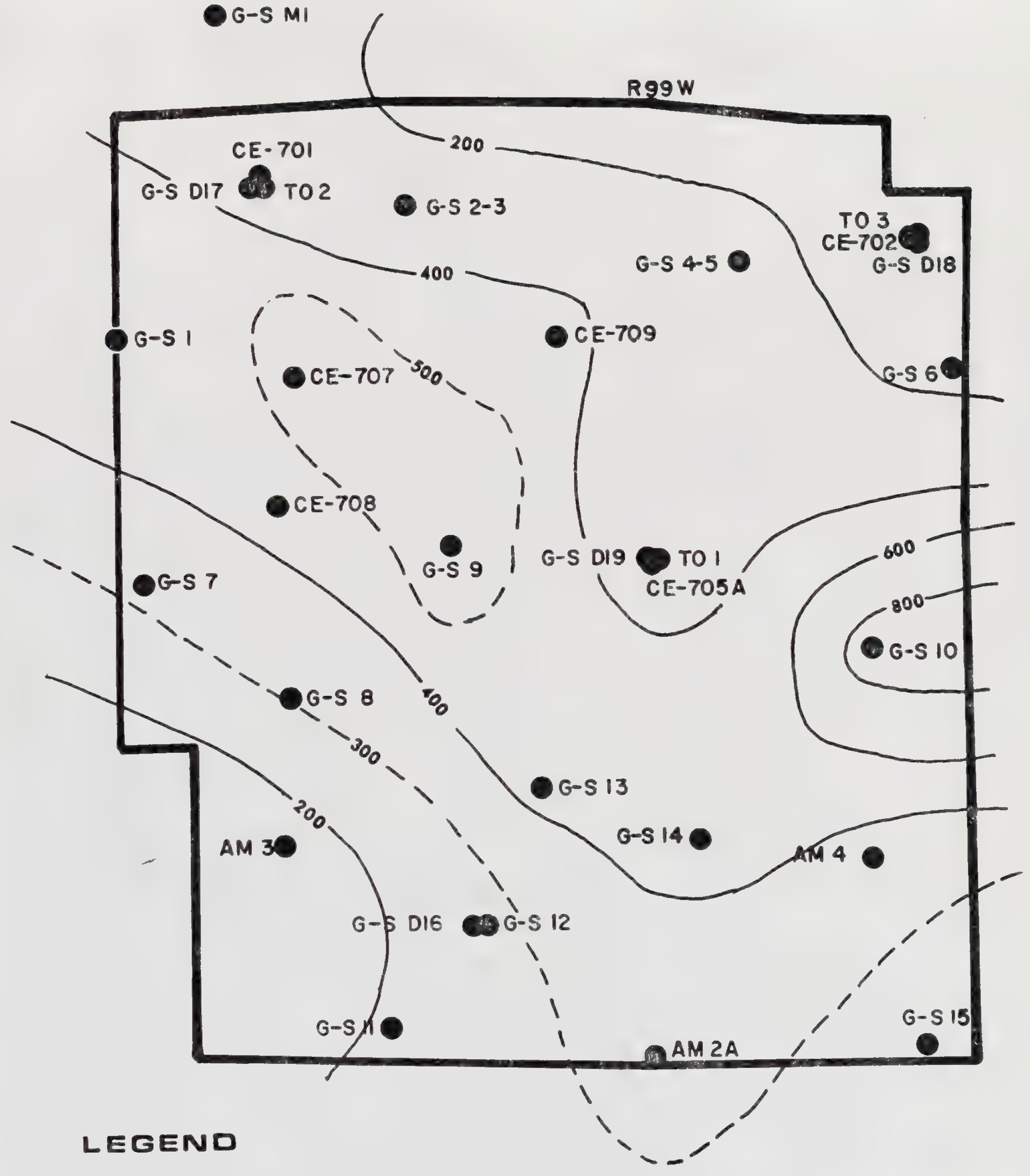
SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-91

HARDNESS
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
R99W
200
CE-701
G-S D17
TO 2
G-S 2-3
400
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
500
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
600
800
G-S 7
G-S 10
G-S 8
400
300
G-S 13
200
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
—— CONTOUR INTERVAL 200 PPM
– – – SUPPLEMENTARY CONTOUR

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

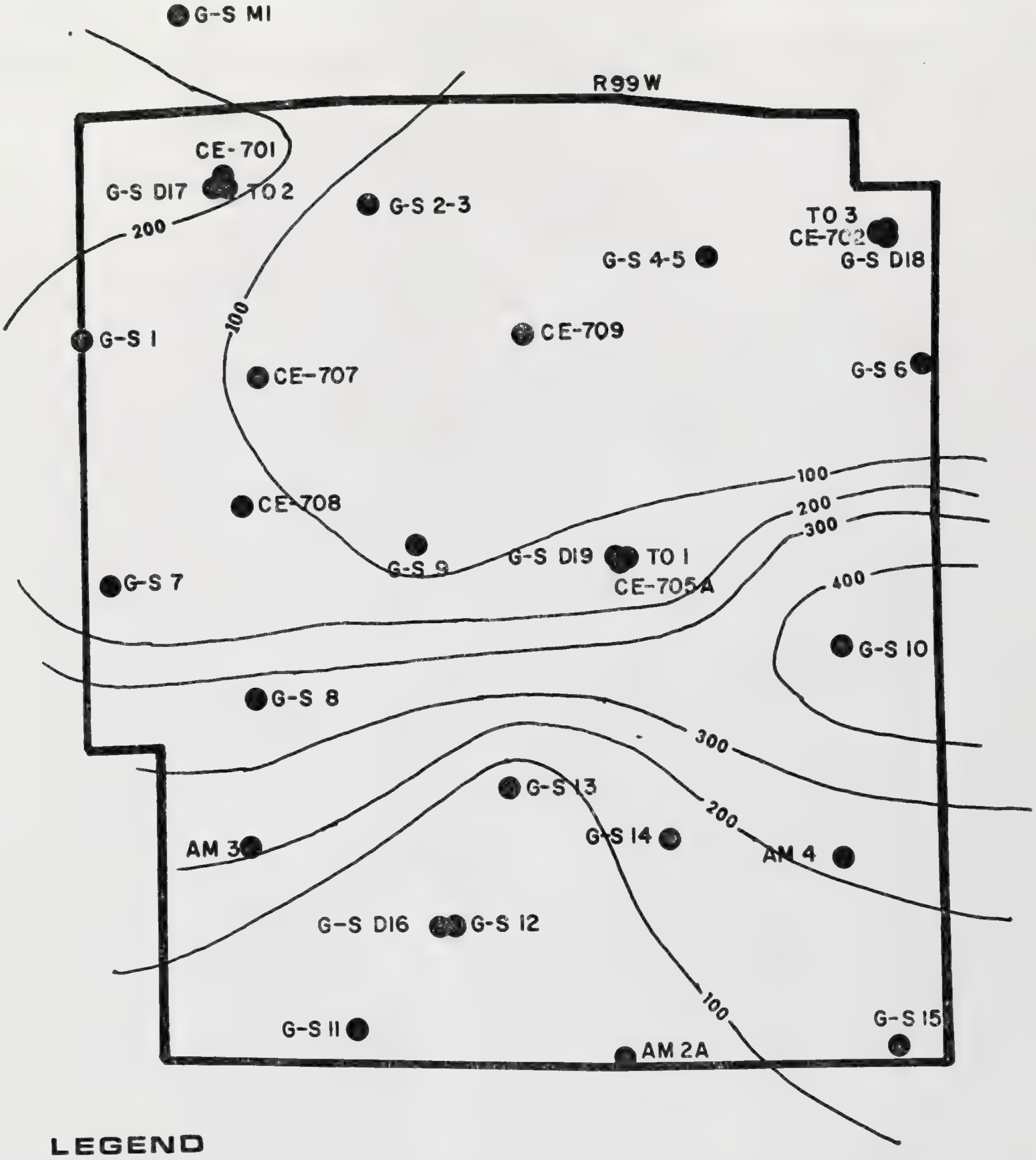
N

SCALE: 1''=3000'

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER COLORADO 80211
(303) 488-6201

FIGURE 1.2-92

HARDNESS
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
200
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
100
G-S 1
CE-709
CE-707
G-S 6
100
200
300
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
400
G-S 10
G-S 8
300
G-S 13
200
G-S 14
AM 3
AM 4
G-S D16
G-S 12
100
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
—— CONTOUR INTERVAL 100 PPM

N

SCALE: 1''=3000'

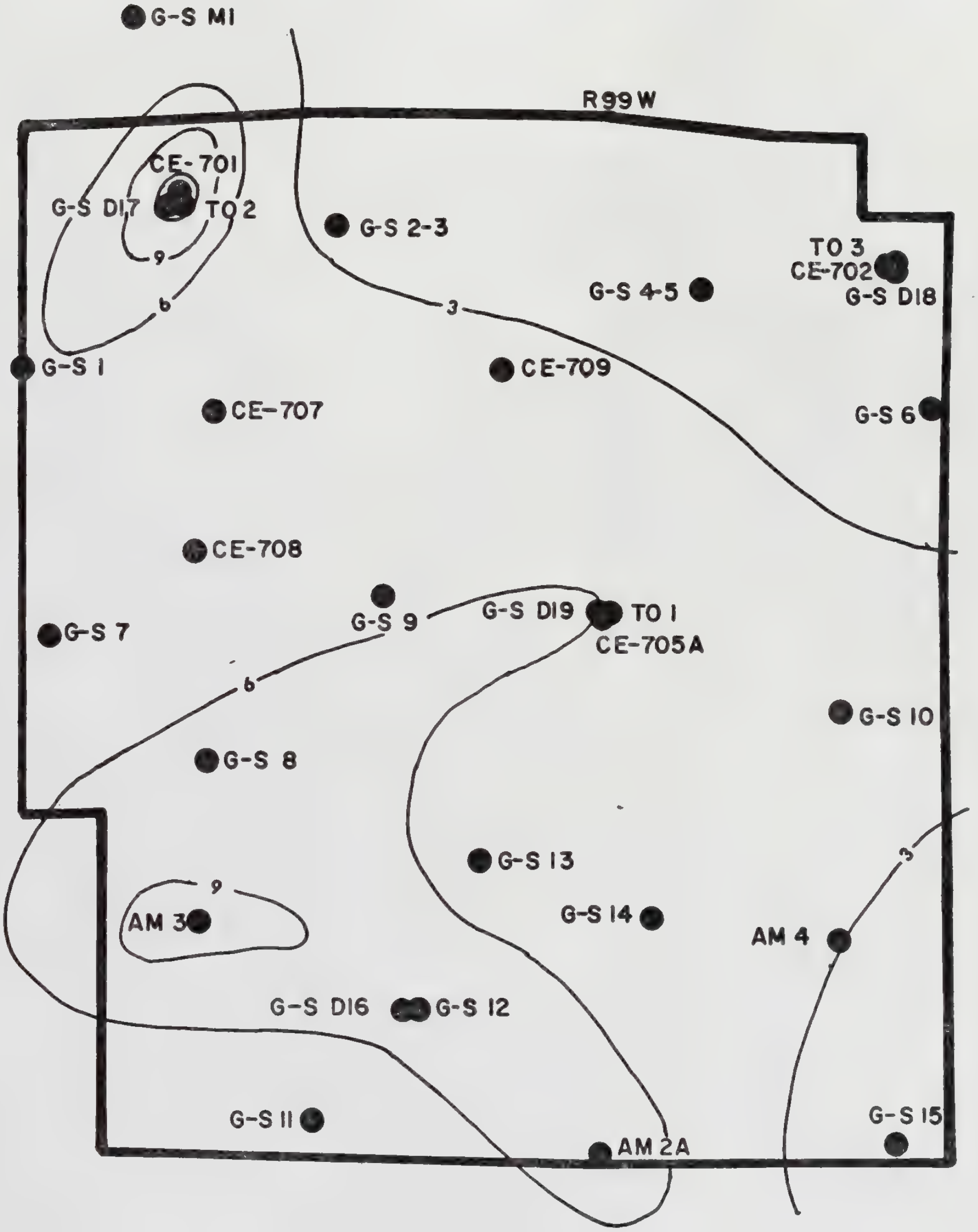
RBOSP PROGRESS REPORT

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2420 ALCOTT STREET
DENVER, COLORADO 80211
(303) 458-6201

FIGURE 1.2-93

IRON
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
9
6
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
3
G-S 1
CE-709
CE-707
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
6
G-S 10
G-S 8
G-S 13
9
AM 3
G-S 14
AM 4
3
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 3 PPM

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

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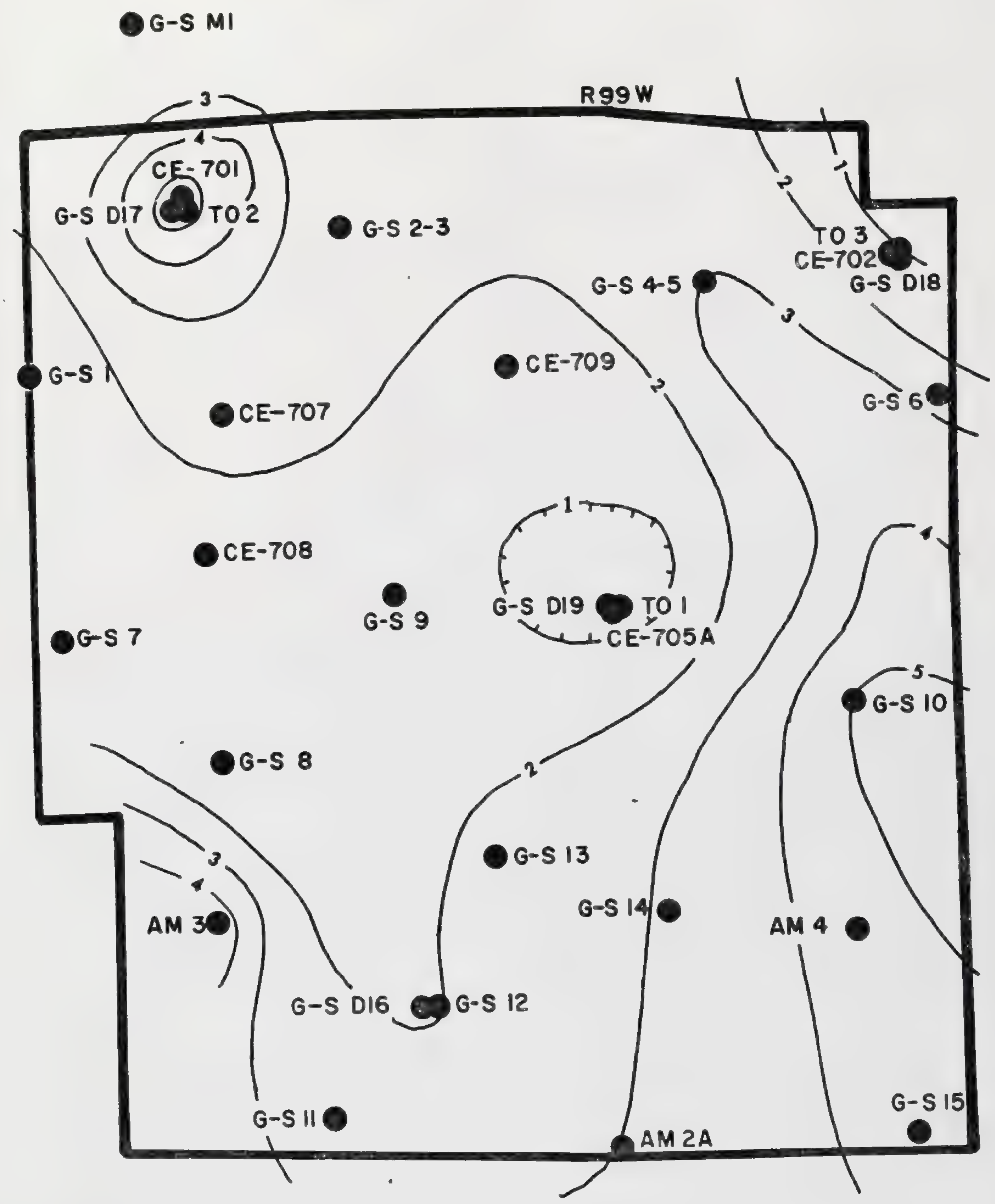
(303) 458-6201

FIGURE 1.2-94

IRON
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
R99W
3
4
CE-701
G-S D17
TO 2
G-S 2-3
1
2
TO 3
CE-702
G-S D18
G-S 4-5
3
G-S 1
CE-709
2
CE-707
G-S 6
1
4
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
5
G-S 10
G-S 8
2
3
4
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 1 PPM

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

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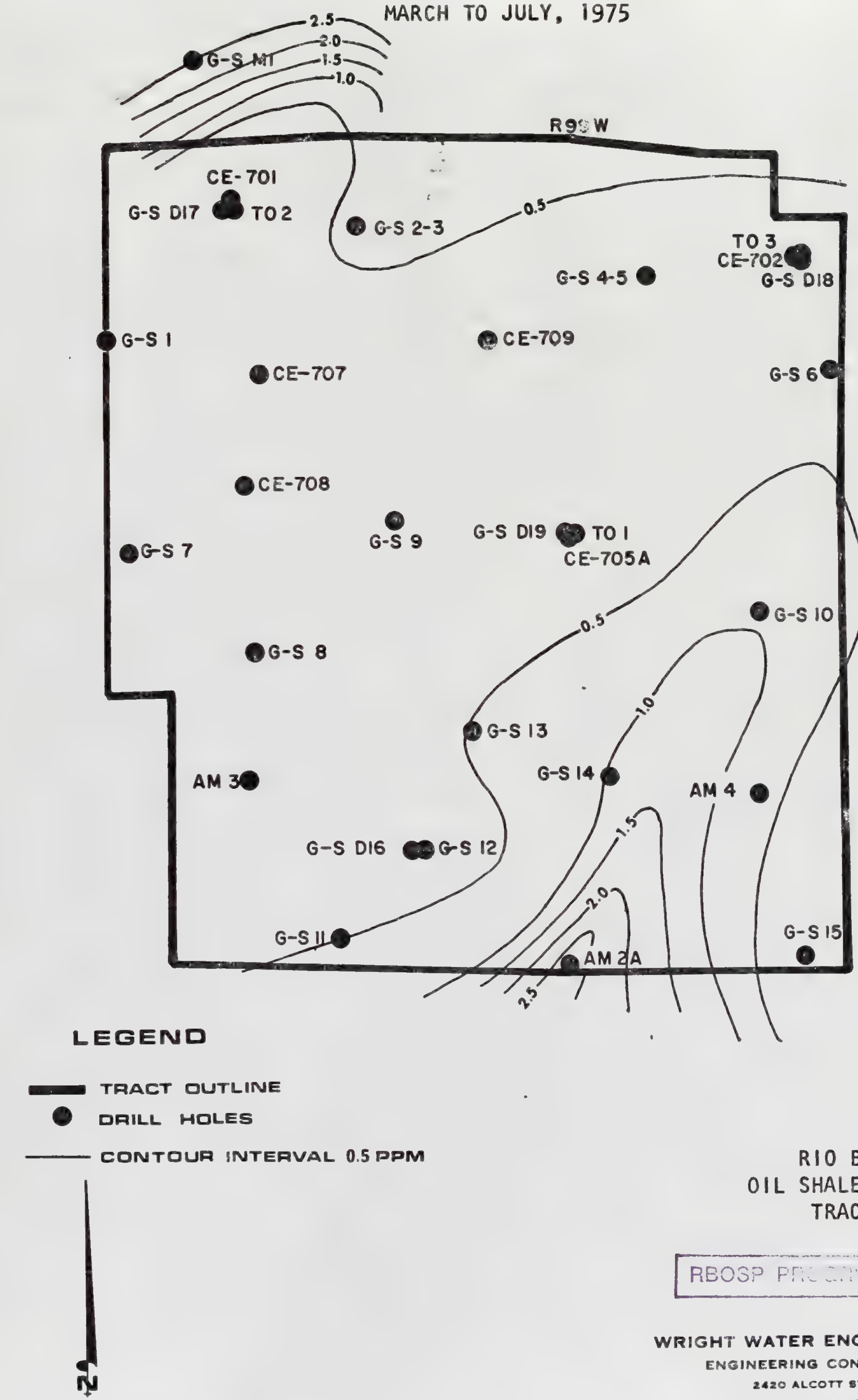
(303) 458-6201

FIGURE 1.2-95

LEAD
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


2.5
2.0
1.5
1.0
G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
0.5
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
0.5
G-S 8
1.0
G-S 13
AM 3
G-S 14
AM 4
1.5
G-S D16
G-S 12
2.0
G-S 11
G-S 15
AM 2A
2.5
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 0.5 PPM
N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

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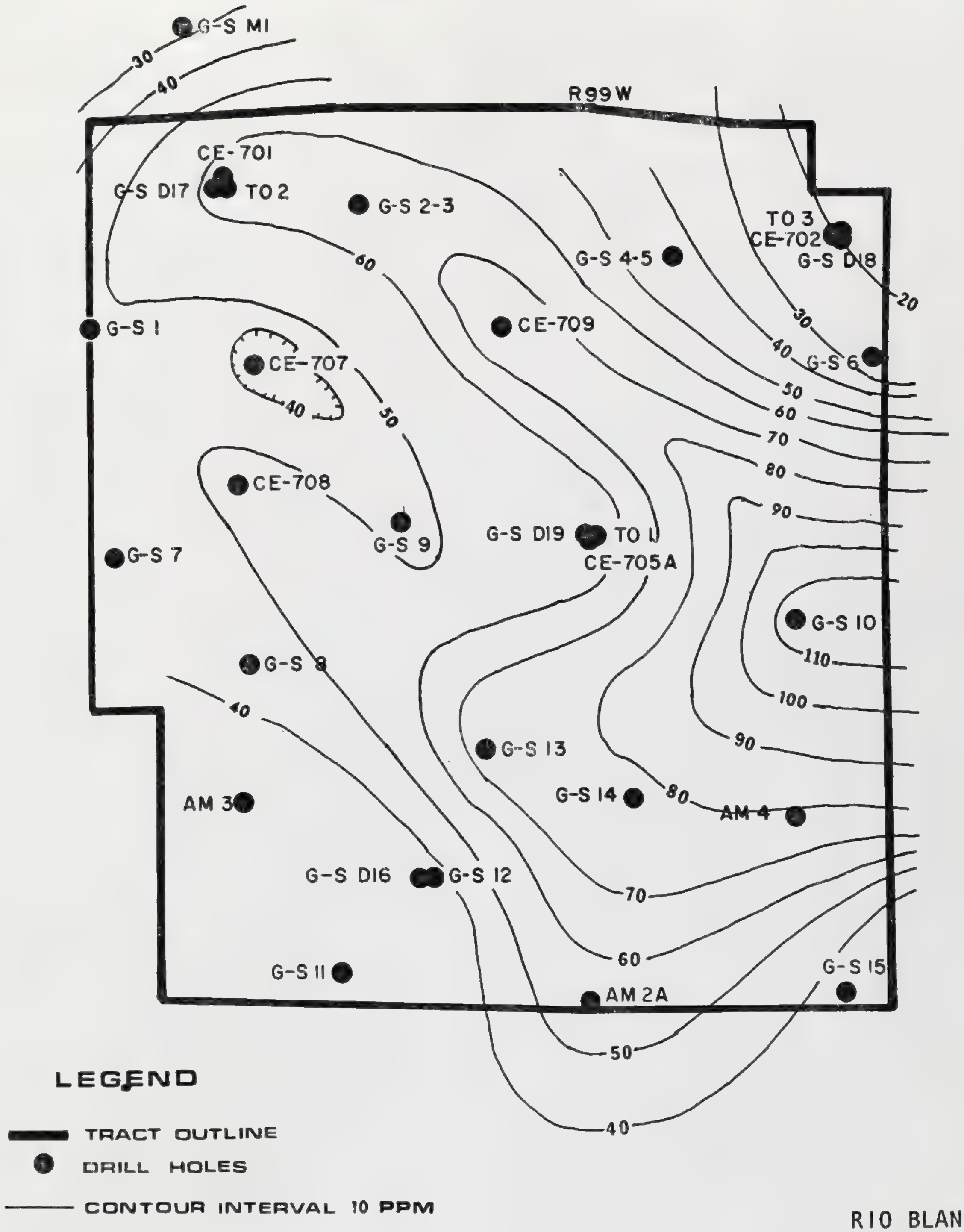
FIGURE 1.2-96

MAGNESIUM
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
30
40
R99W
CE-701
G-S D17
TO 2
G-S 2-3
60
G-S 4-5
TO 3
CE-702
G-S D18
20
30
40
G-S 6
G-S 1
CE-709
CE-707
40
50
50
60
70
80
CE-708
G-S 9
G-S D19
TO 1
CE-705A
90
G-S 7
G-S 10
110
100
G-S 8
40
90
G-S 13
G-S 14
80
AM 3
AM 4
G-S D16
G-S 12
70
60
G-S 11
AM 2A
G-S 15
50
40
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 10 PPM

N

SCALE: 1" = 3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

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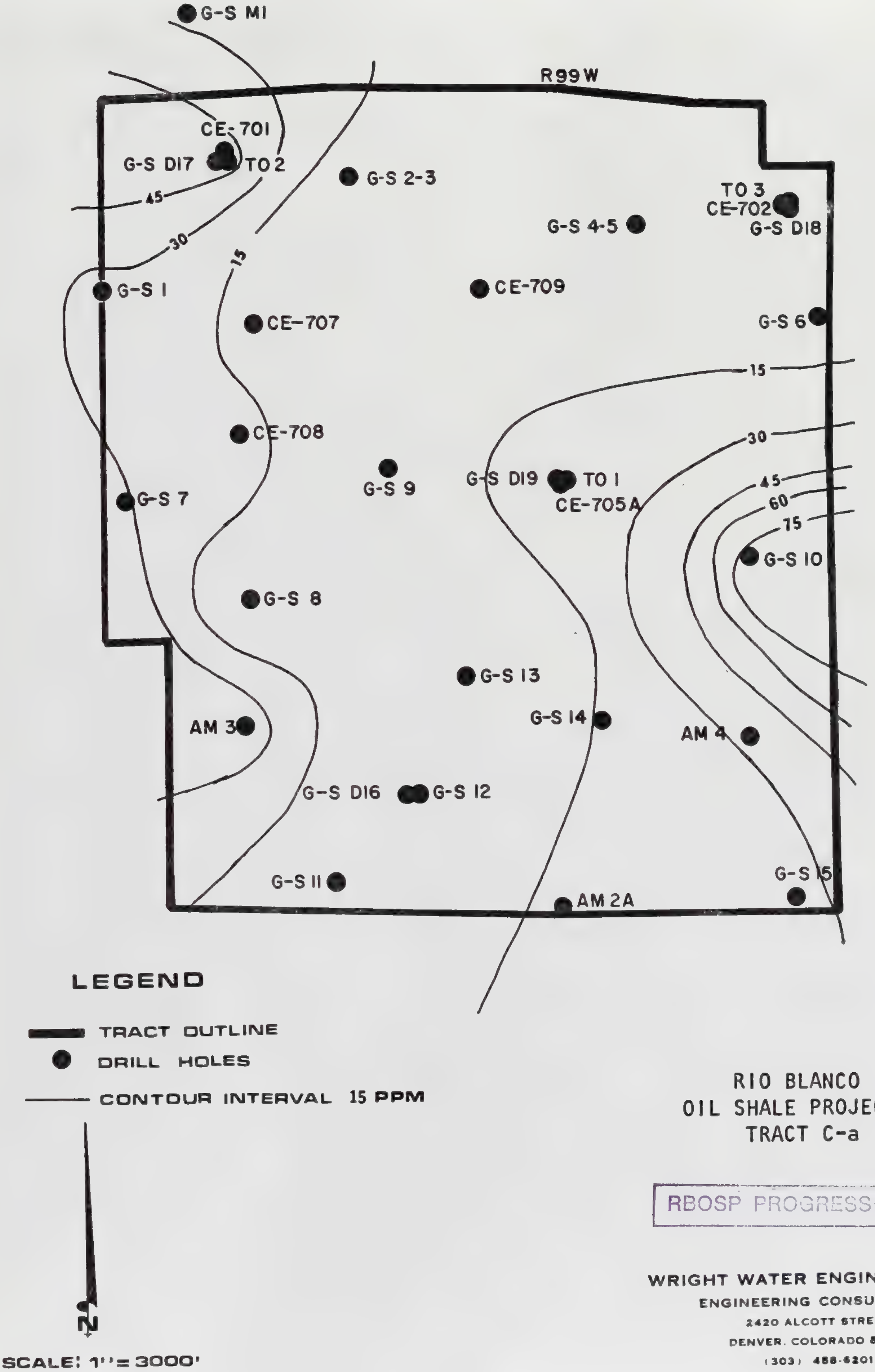
FIGURE 1.2-96

MAGNESIUM
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
R99W
CE-701
G-S D17
TO 2
G-S 2-3
45
30
15
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
G-S 6
15
CE-708
30
G-S 9
G-S D19
TO 1
CE-705A
45
60
75
G-S 7
G-S 10
G-S 8
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 15 PPM
N
SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

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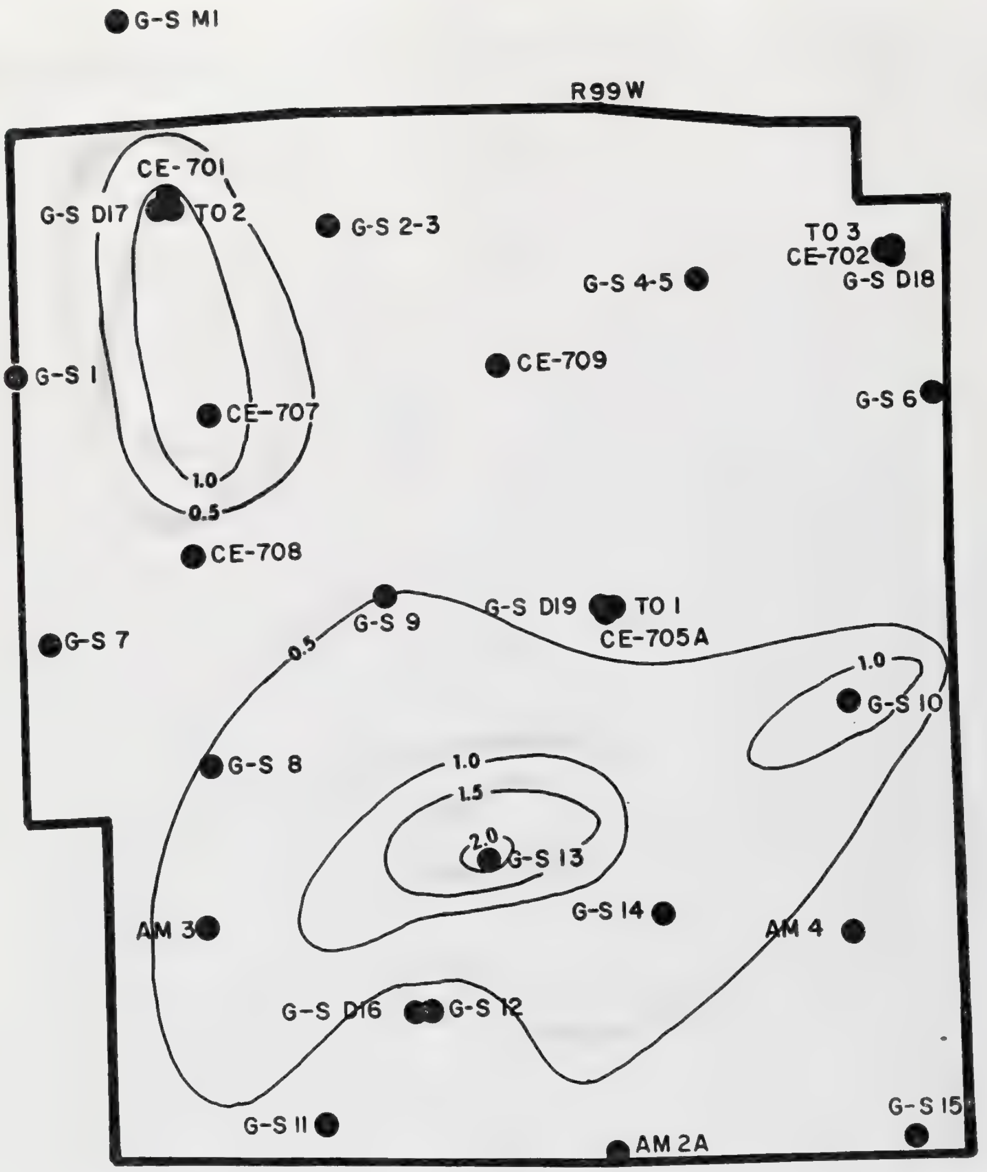
FIGURE 1.2-98

NITRATE
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
G-S 6
CE-707
1.0
0.5
CE-708
G-S D19
TO 1
CE-705A
G-S 9
G-S 7
0.5
1.0
G-S 10
G-S 8
1.0
1.5
2.0
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
── CONTOUR INTERVAL 0.5 PPM

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

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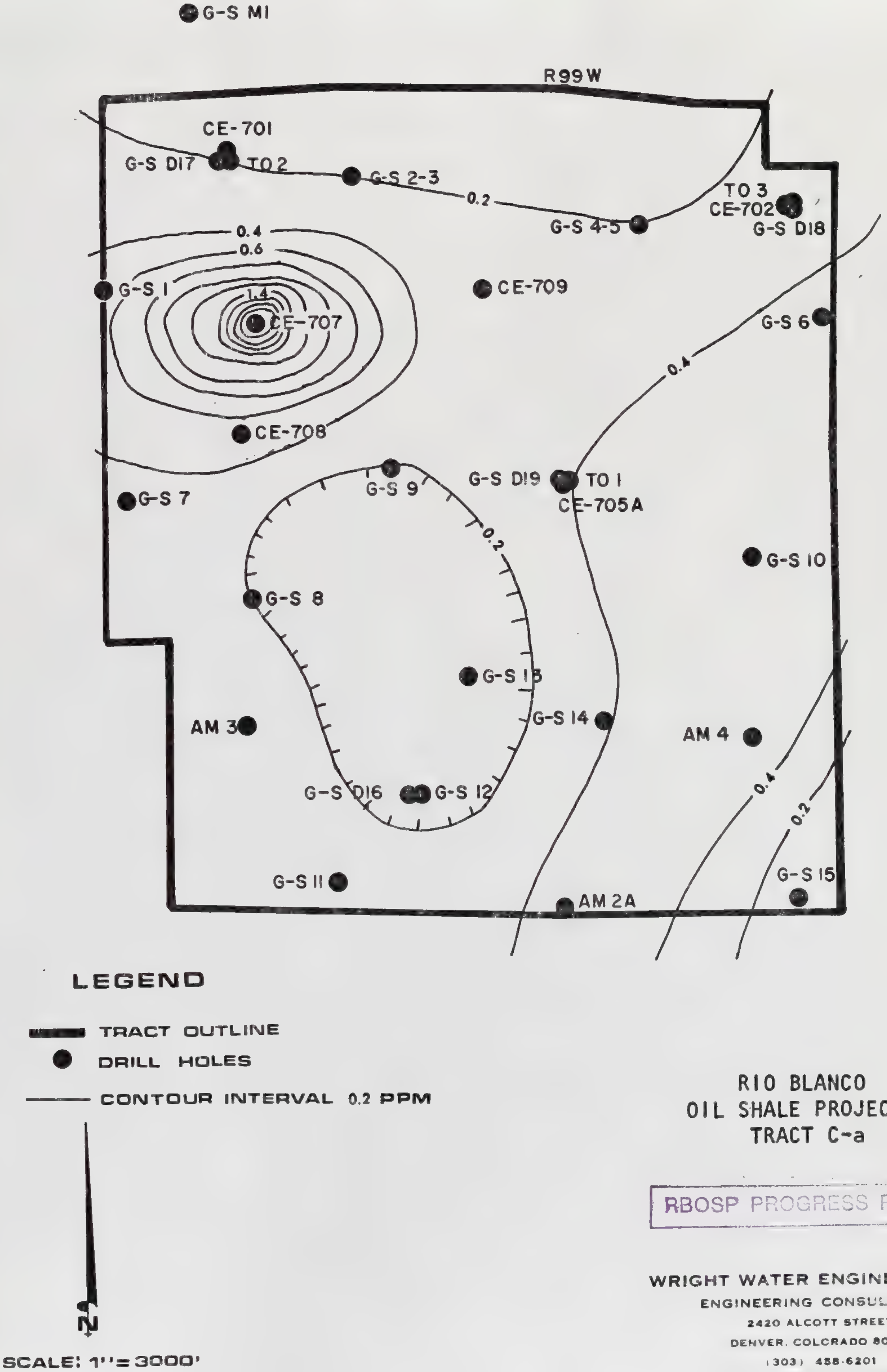
FIGURE 1.2-99

NITRATE
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
0.2
TO 3
CE-702
G-S D18
G-S 4-5
0.4
0.6
G-S 1
1.4
CE-707
CE-709
G-S 6
0.4
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
0.2
G-S 10
G-S 8
G-S 13
G-S 14
AM 3
AM 4
0.4
0.2
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 0.2 PPM
N
SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

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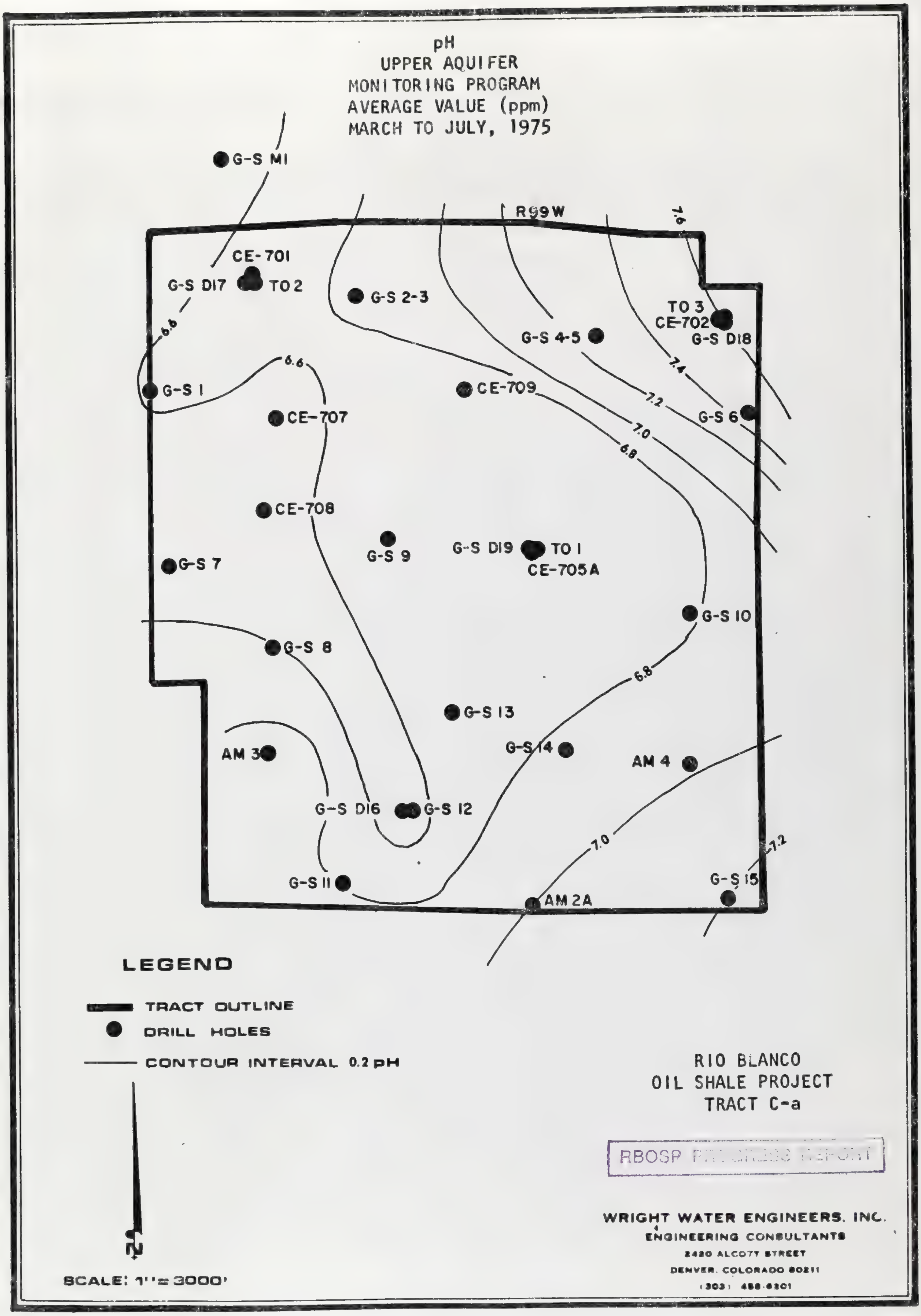
(303) 458-6201

FIGURE 1.2-100



pH
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975

G-S M1
R99W
7.6
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
6.6
6.6
7.4
G-S 1
CE-709
7.2
G-S 6
CE-707
7.0
6.8
CE-708
G-S D19
TO 1
CE-705A
G-S 9
G-S 7
G-S 10
G-S 8
6.8
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
7.0
7.2
G-S 15
G-S 11
AM 2A
LEGEND
TRACT OUTLINE
DRILL HOLES
CONTOUR INTERVAL 0.2 pH
N
SCALE: 1''=3000'
RIO BLANCO
OIL SHALE PROJECT
TRACT C-a
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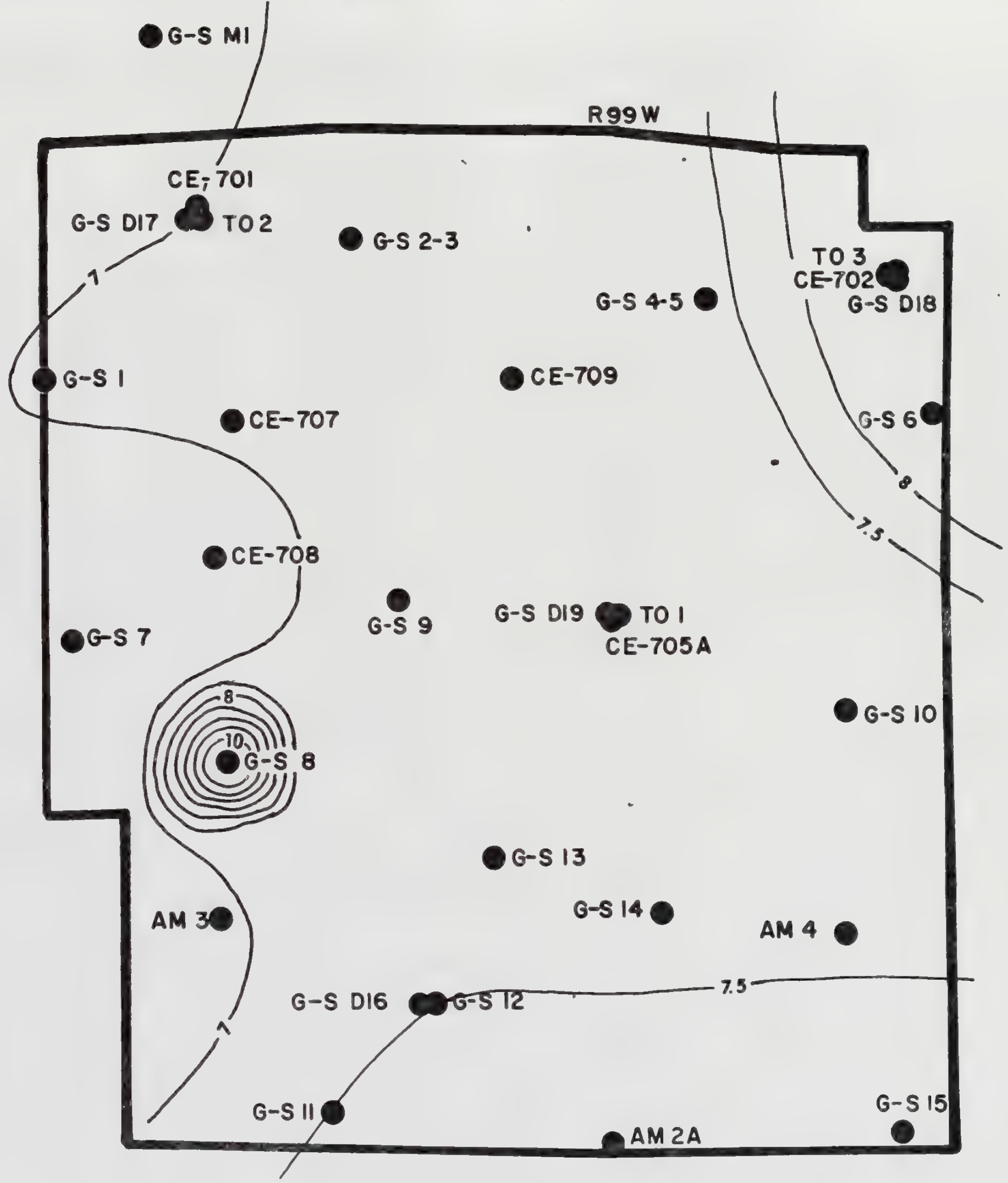
(303) 458-6201

FIGURE 1.2-101

pH
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
7
G-S 1
CE-709
CE-707
G-S 6
8
7.5
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
8
10
G-S 8
G-S 10
G-S 13
G-S 14
AM 3
AM 4
7.5
G-S D16
G-S 12
7
G-S 11
G-S 15
AM 2A

LEGEND

▬ TRACT OUTLINE

● DRILL HOLES

— CONTOUR INTERVAL 0.5 pH

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

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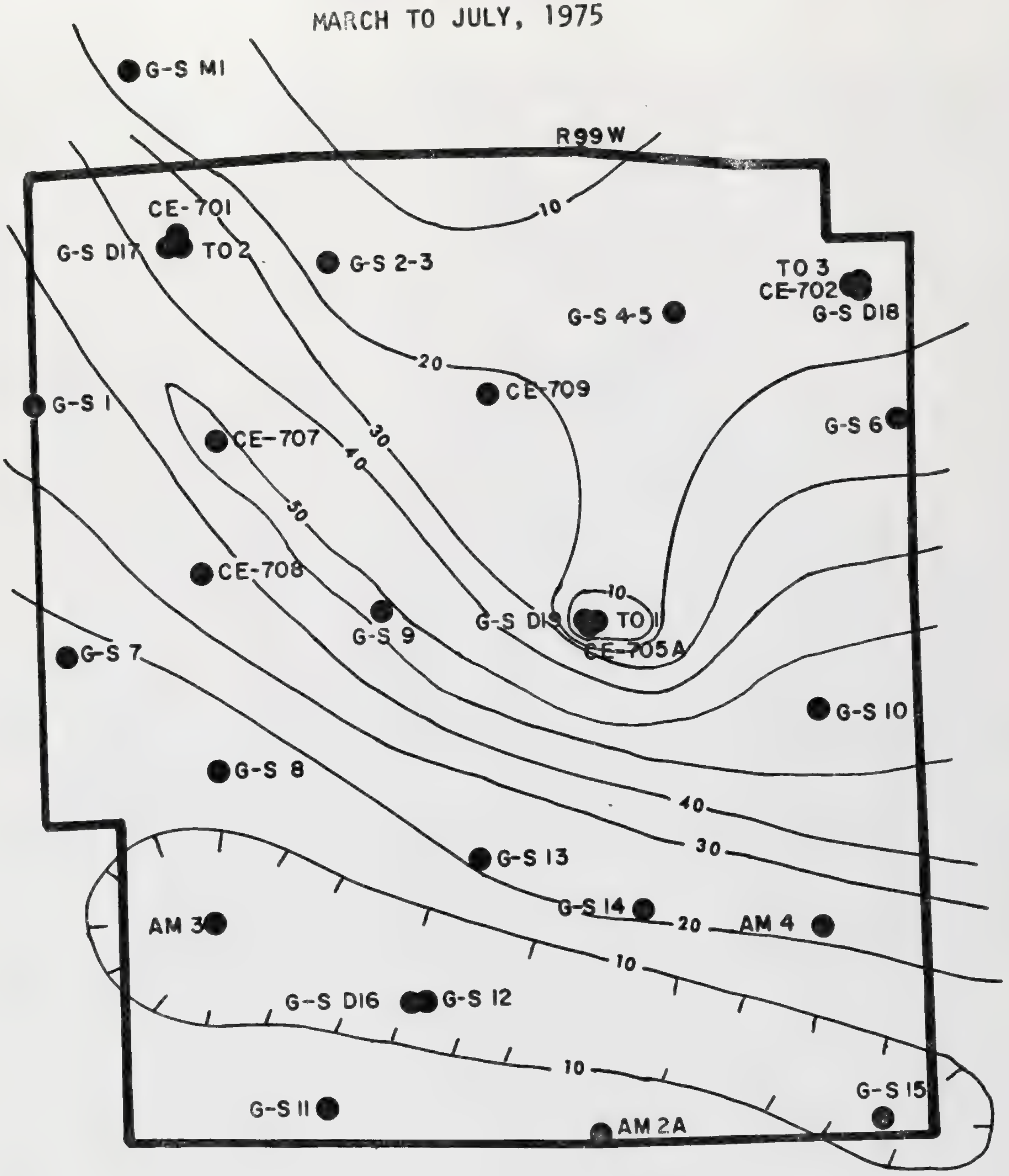
(303) 458-6201

FIGURE 1.2-102

SILICON DIOXIDE
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
10
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
20
CE-709
G-S 1
G-S 6
CE-707
30
40
50
CE-708
10
G-S D19
TO 1
G-S 9
CE-705A
G-S 7
G-S 10
G-S 8
40
30
G-S 13
G-S 14
20
AM 3
AM 4
10
G-S D16
G-S 12
10
G-S 15
G-S 11
AM 2A

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 10 PPM

N

SCALE: 1''= 3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

RBOSP PROGRESS REPORT

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2420 ALCOTT STREET
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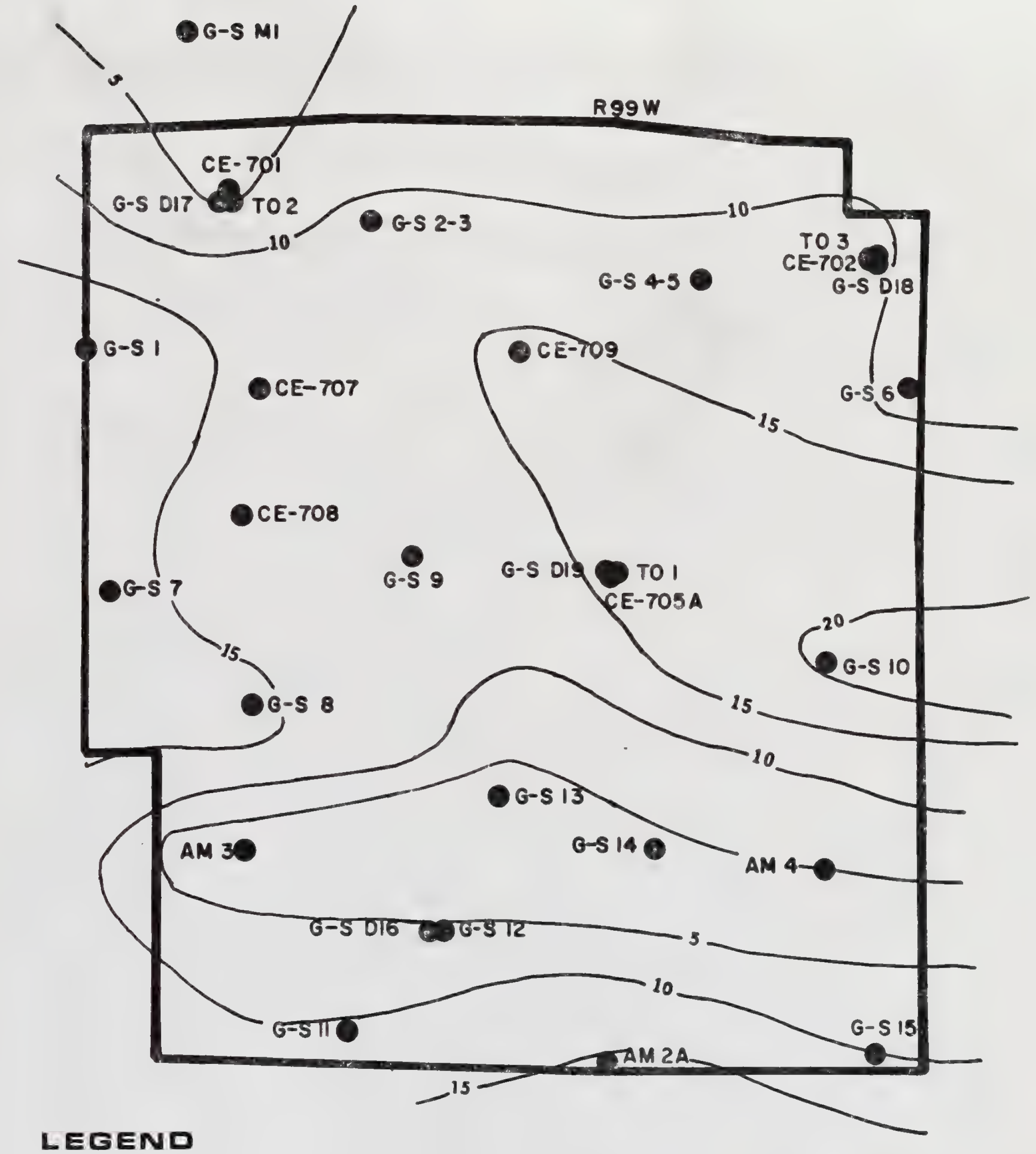
(303) 488-6201

FIGURE 1.2-103

SILICON DIOXIDE
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
5
R99W
CE-701
G-S D17
TO 2
G-S 2-3
10
10
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
G-S 6
15
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
20
G-S 10
15
15
G-S 8
10
G-S 13
AM 3
G-S 14
AM 4
G-S D16
G-S 12
5
10
G-S 11
G-S 15
AM 2A
15

LEGEND

TRACT OUTLINE
● DRILL HOLES
CONTOUR INTERVAL 5 PPM

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
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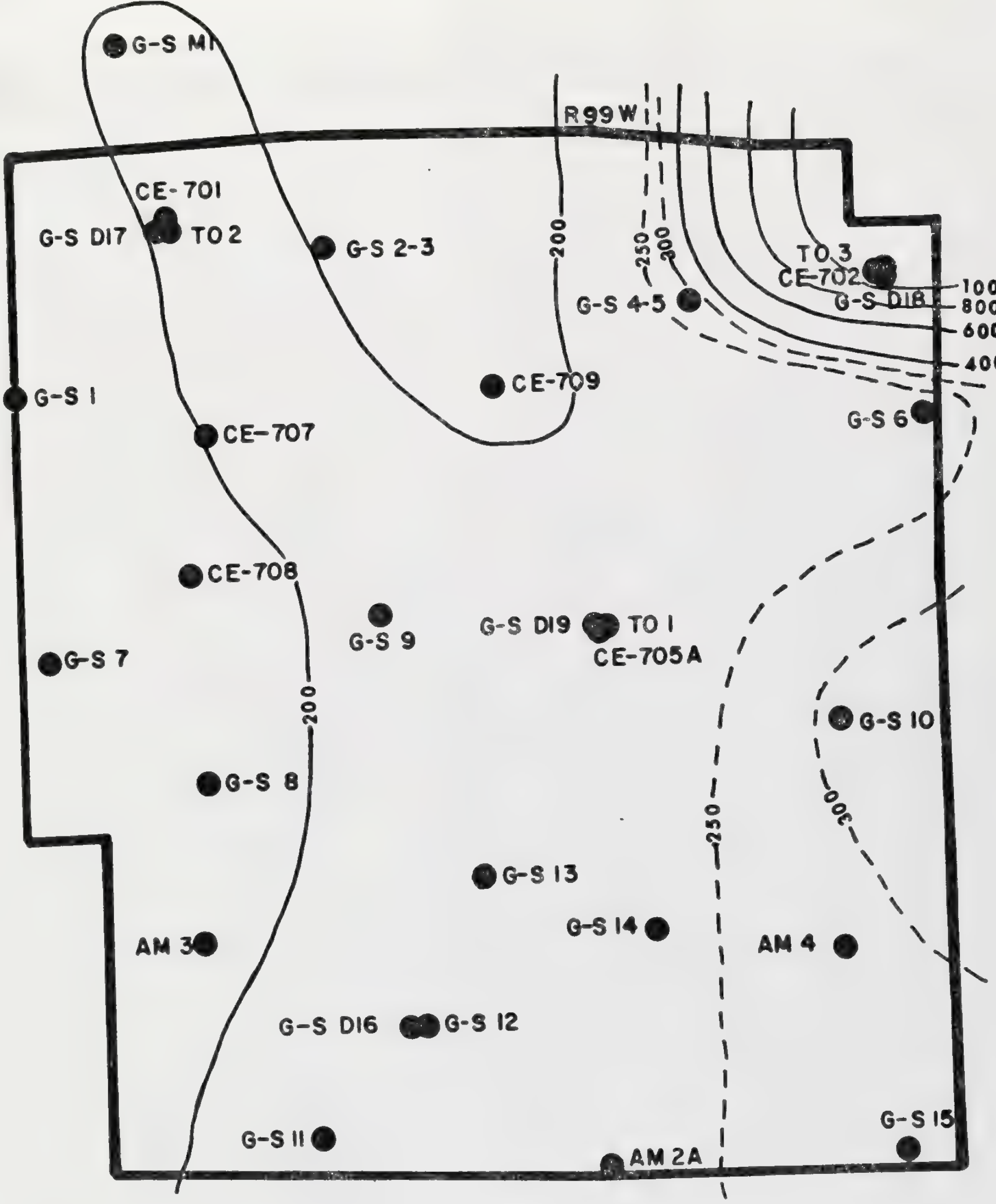
FIGURE 1.2-104

SODIUM
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
200
250
300
TO 3
CE-702
G-S D18
1000
800
600
400
G-S 4-5
CE-709
G-S 1
CE-707
G-S 6
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
200
G-S 10
G-S 8
250
300
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 15
G-S 11
AM 2A

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
—— CONTOUR INTERVAL 200 PPM
- - - - SUPPLEMENTARY CONTOUR

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

WRIGHT WATER ENGINEERS, INC.
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2420 ALCOTT STREET
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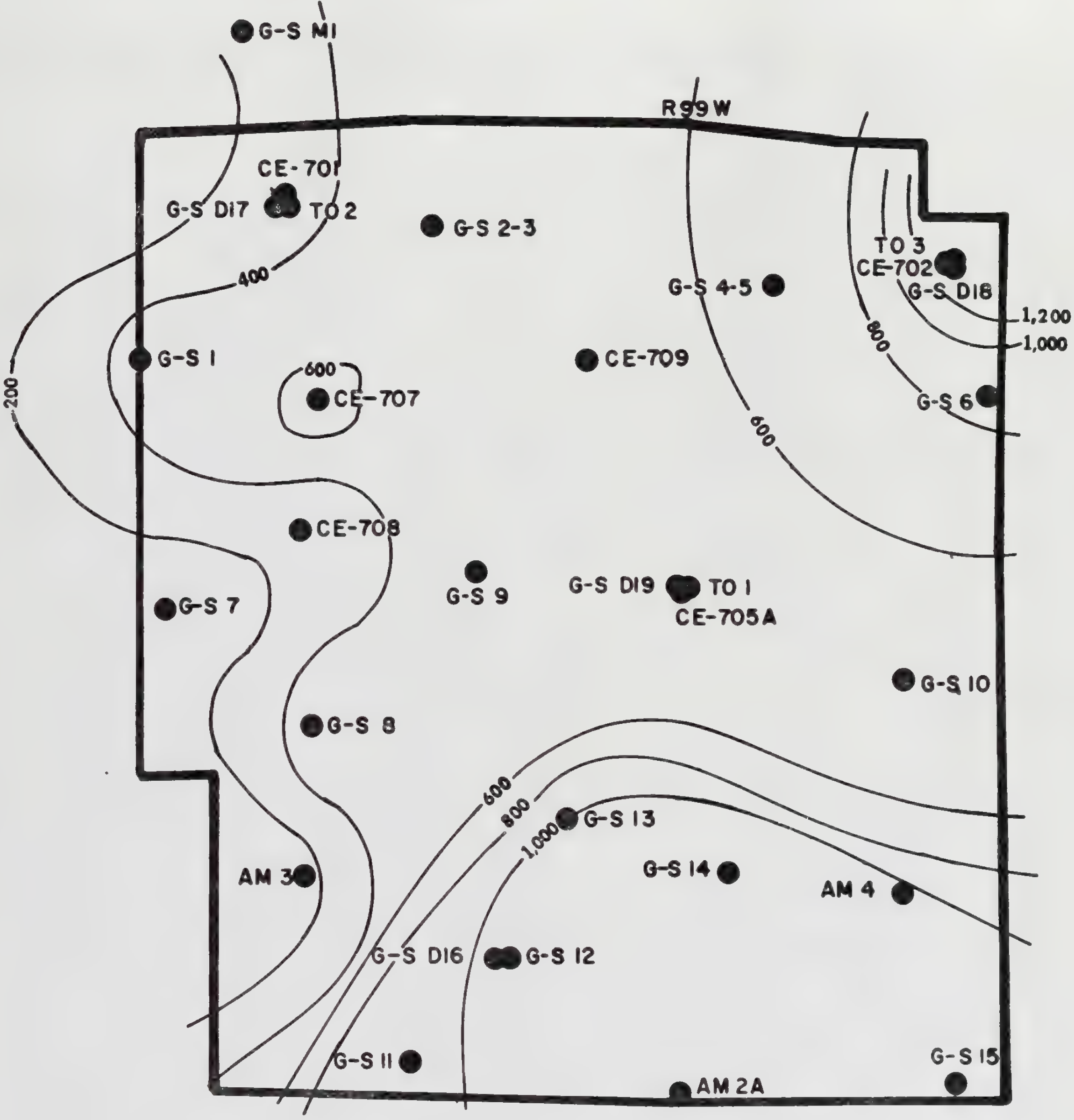
(303) 480-6201

FIGURE 1.2-105

SODIUM
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
TO 3
CE-702
G-S D18
G-S 4-5
1,200
1,000
800
400
G-S 1
600
CE-707
CE-709
200
G-S 6
600
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
G-S 8
600
800
1,000
G-S 13
G-S 14
AM 3
AM 4
G-S D16
G-S 12
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 200 PPM

N

SCALE: 1''=3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

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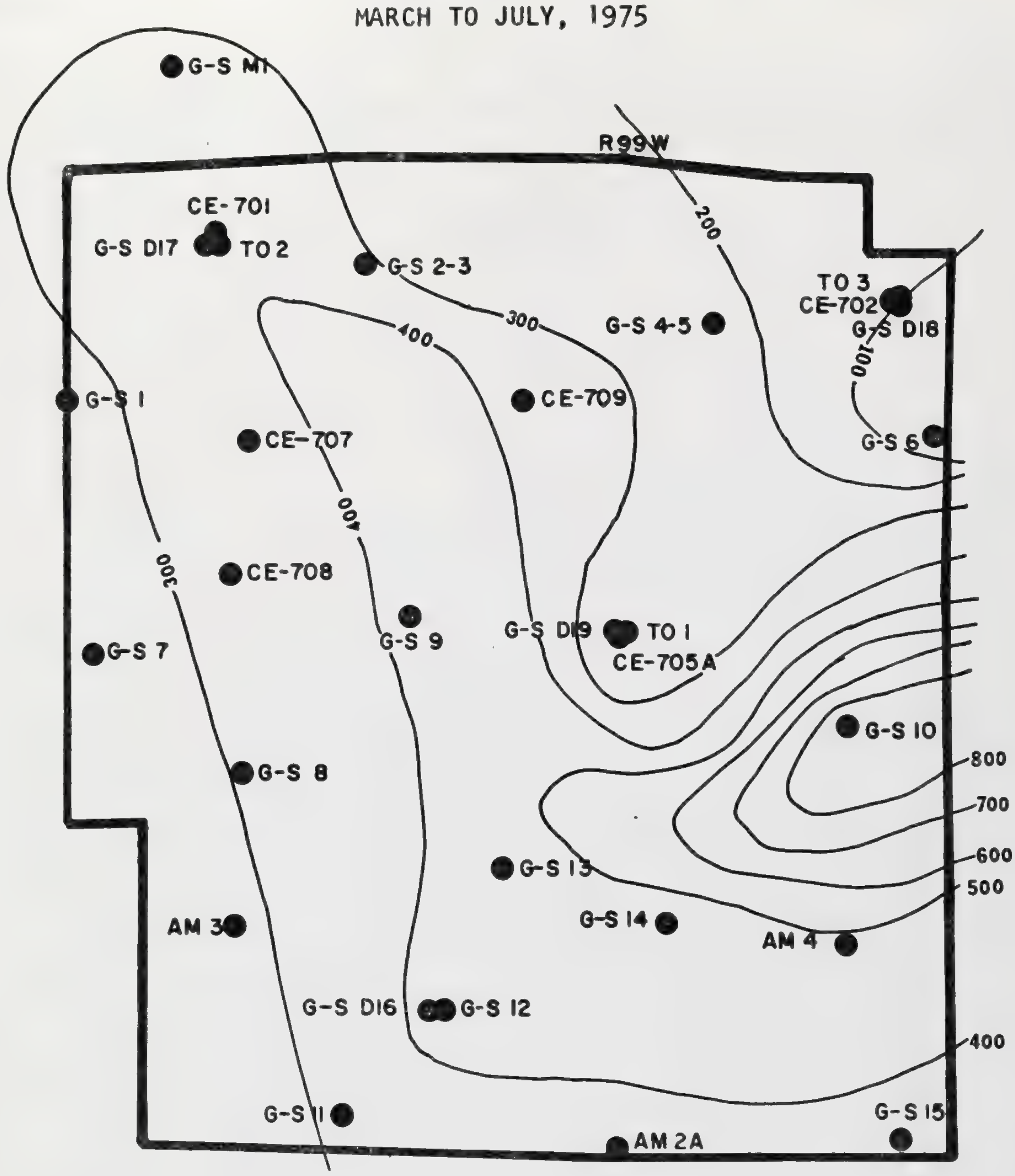
FIGURE 1.2-106

SULFATE
UPPER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S M1
R99W
CE-701
G-S D17
TO 2
G-S 2-3
200
TO 3
CE-702
G-S D18
300
400
G-S 4-5
100
G-S 1
CE-709
CE-707
G-S 6
400
300
CE-708
G-S 9
G-S D19
TO 1
CE-705A
G-S 7
G-S 10
800
G-S 8
700
600
G-S 13
500
AM 3
G-S 14
AM 4
G-S D16
G-S 12
400
G-S 11
AM 2A
G-S 15

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 100 PPM

N

SCALE: 1''= 3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

RBOSP PROGRESS REPORT

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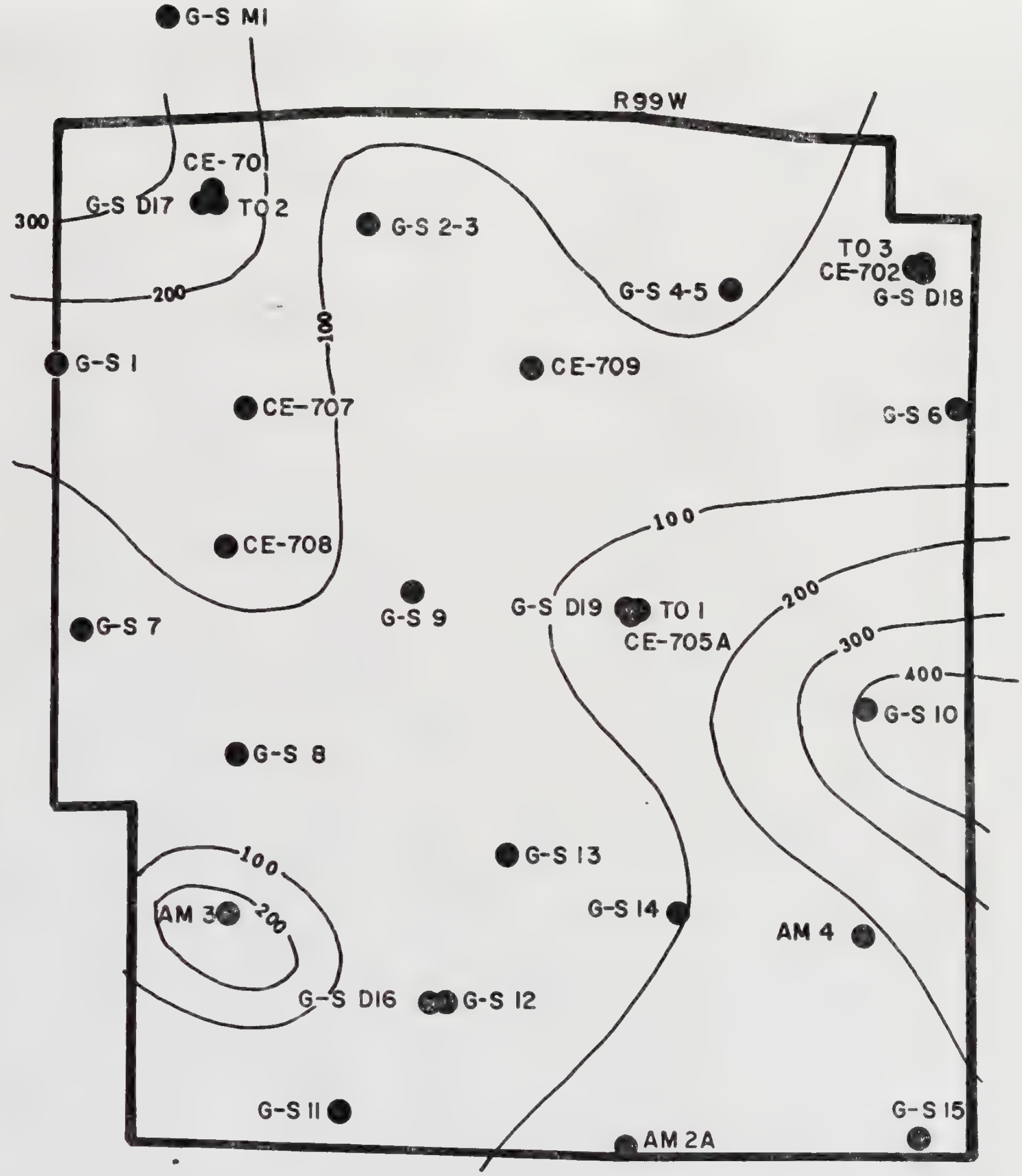
FIGURE 1.2-107

SULFATE
LOWER AQUIFER
MONITORING PROGRAM
AVERAGE VALUE (ppm)
MARCH TO JULY, 1975


G-S MI
R99W
CE-701
G-S D17
TO 2
300
200
G-S 2-3
100
TO 3
CE-702
G-S D18
G-S 4-5
G-S 1
CE-709
CE-707
G-S 6
100
CE-708
G-S 9
G-S D19
TO 1
CE-705A
200
G-S 7
300
400
G-S 10
G-S 8
100
G-S 13
AM 3
200
G-S 14
AM 4
G-S D16
G-S 12
G-S 11
G-S 15
AM 2A

LEGEND

▬ TRACT OUTLINE
● DRILL HOLES
— CONTOUR INTERVAL 100 PPM

N

SCALE: 1" = 3000'

RIO BLANCO
OIL SHALE PROJECT
TRACT C-a

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FIGURE 1.2-108

PROGRESS REPORT 4
GEOTECHNICAL DATA GATHERING PROJECT
HYDROLOGIC PROGRAM
SECTION 1.2

INTERPRETIVE TEXT APPENDIX

OCTOBER 15, 1975

TO

AREA OIL SHALE SUPERVISOR
UNITED STATES GEOLOGICAL SURVEY

BY
WRIGHT WATER ENGINEERS, INC.
For
Gulf Oil Corporation
and
Standard Oil Company (Indiana)

RBOSP PROGRESS REPORT

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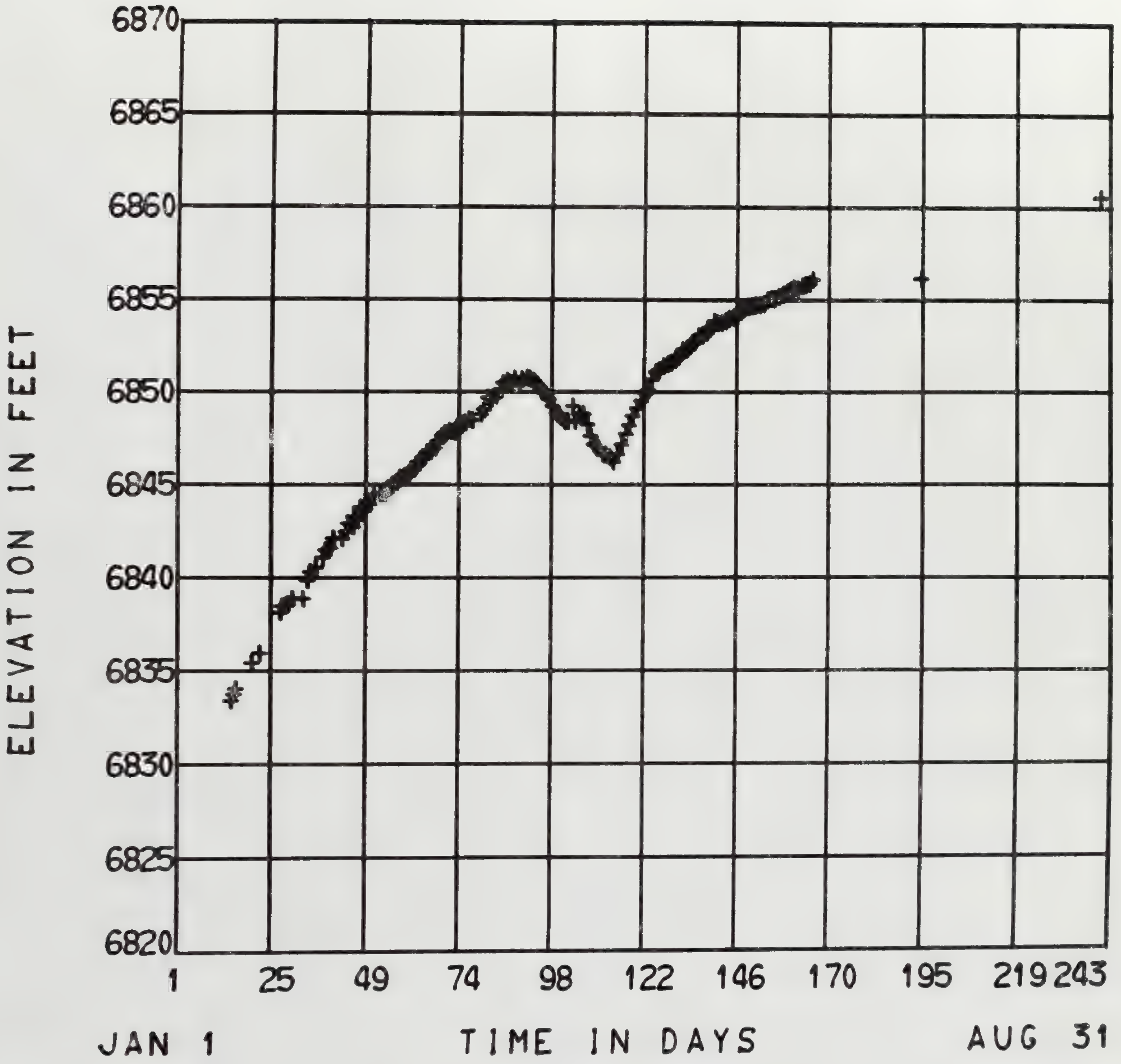
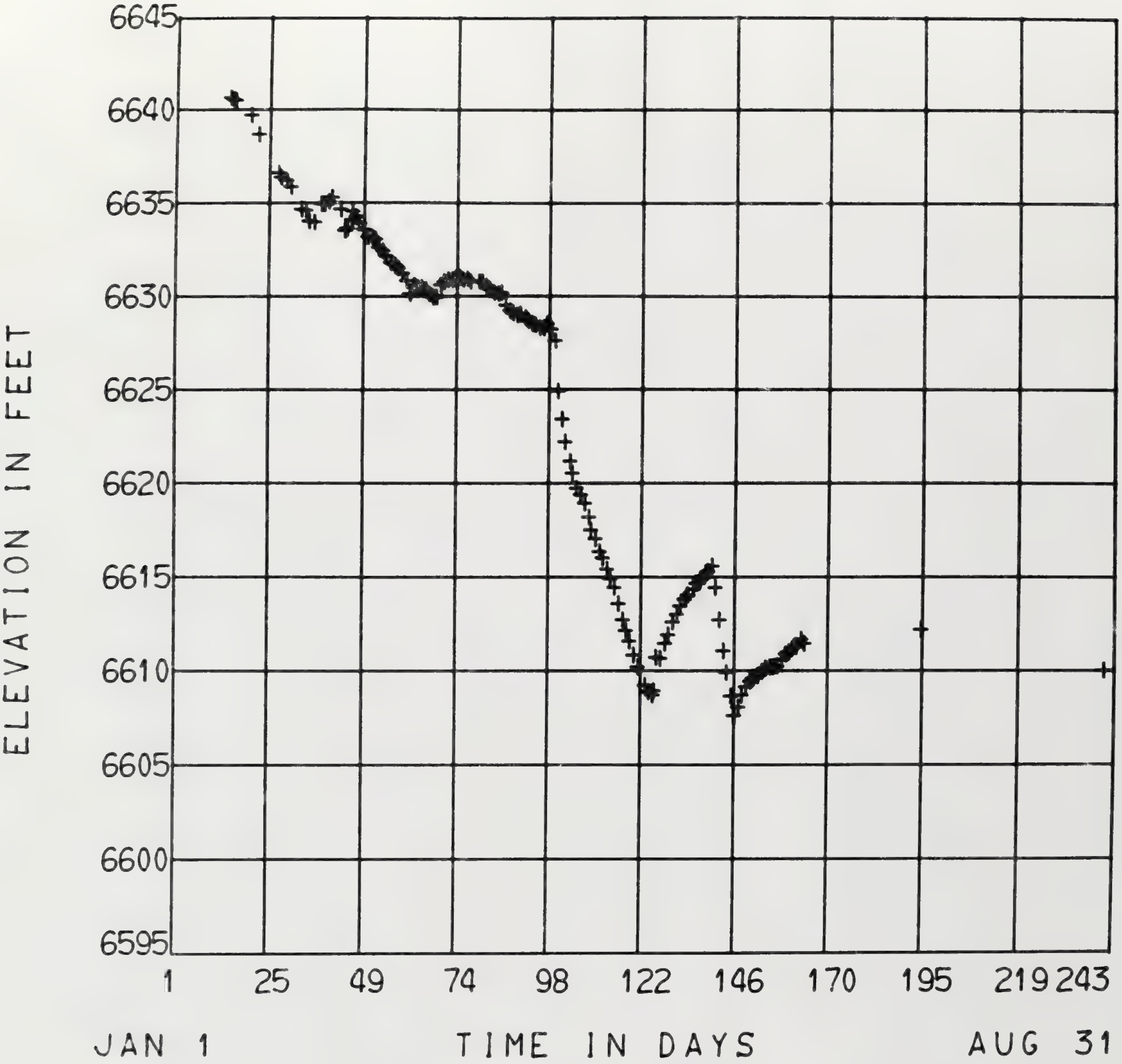
Summary and Basic Data for M-5, Bedrock Monitoring Well on 84 Mesa 3

APPENDIX 1

Hydrographs

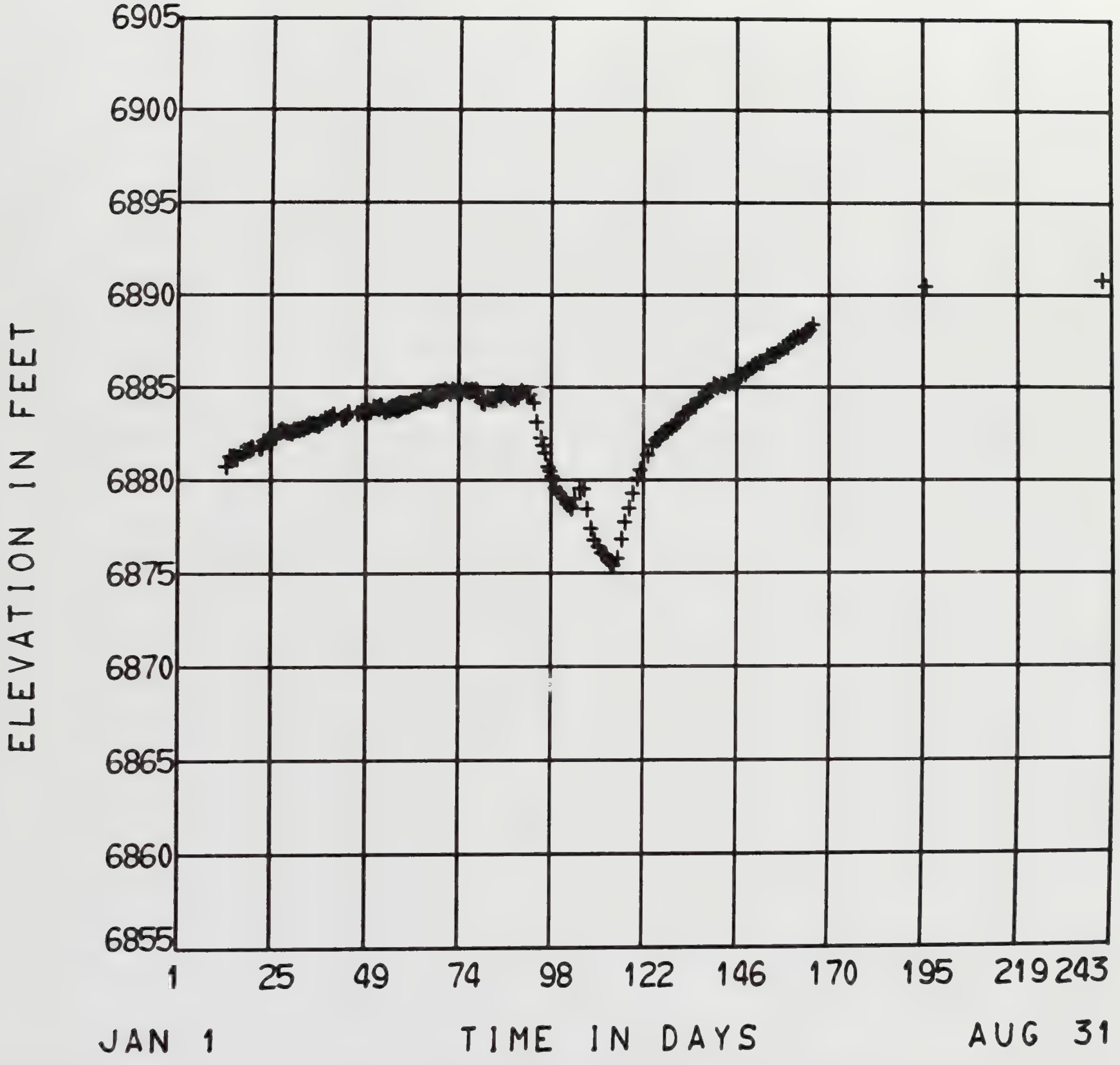


AM-2A HYDROGRAPH UPPR AQUIFER

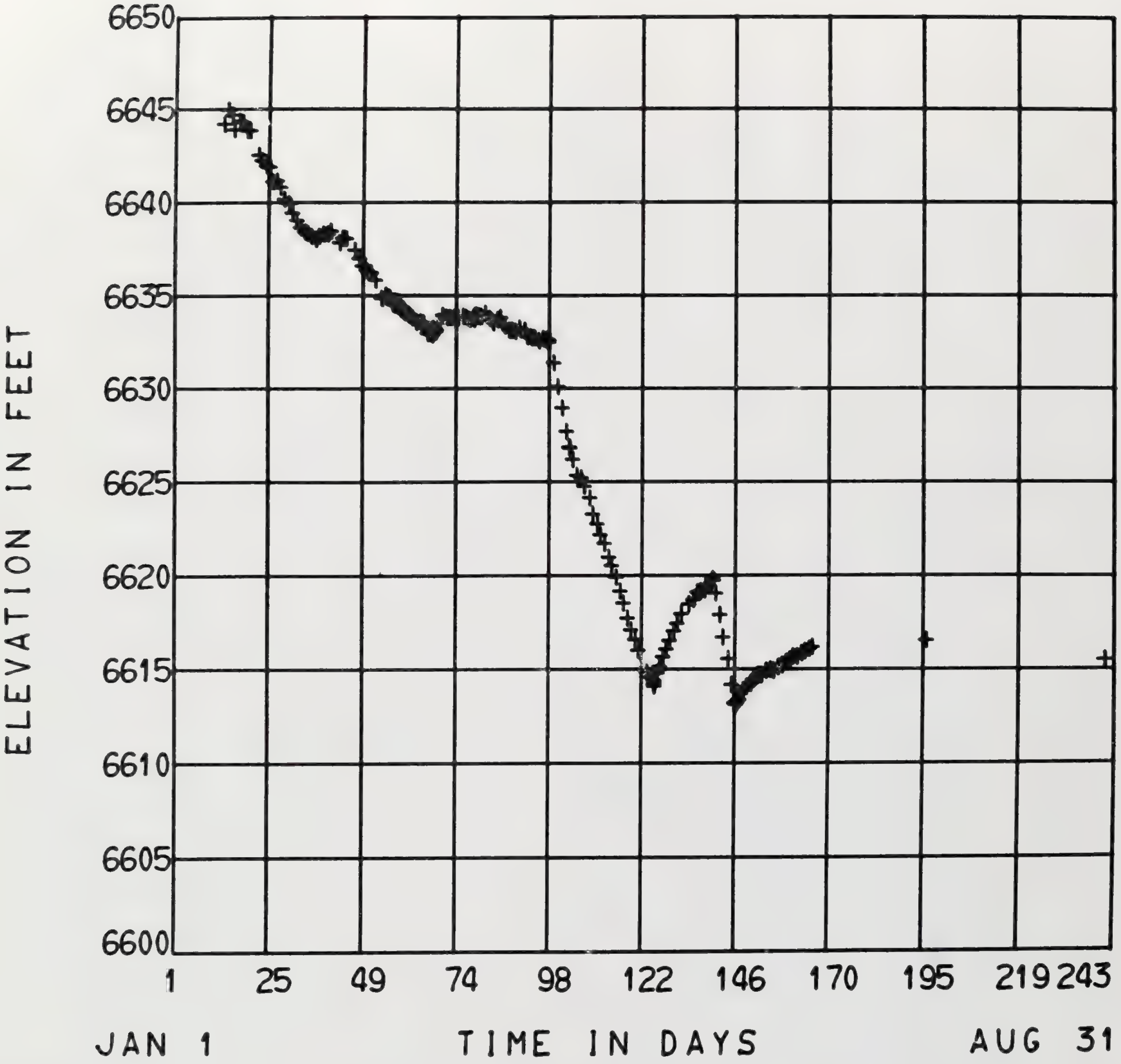


AM-2A HYDROGRAPH LOWR AQUIFER

RBOSP

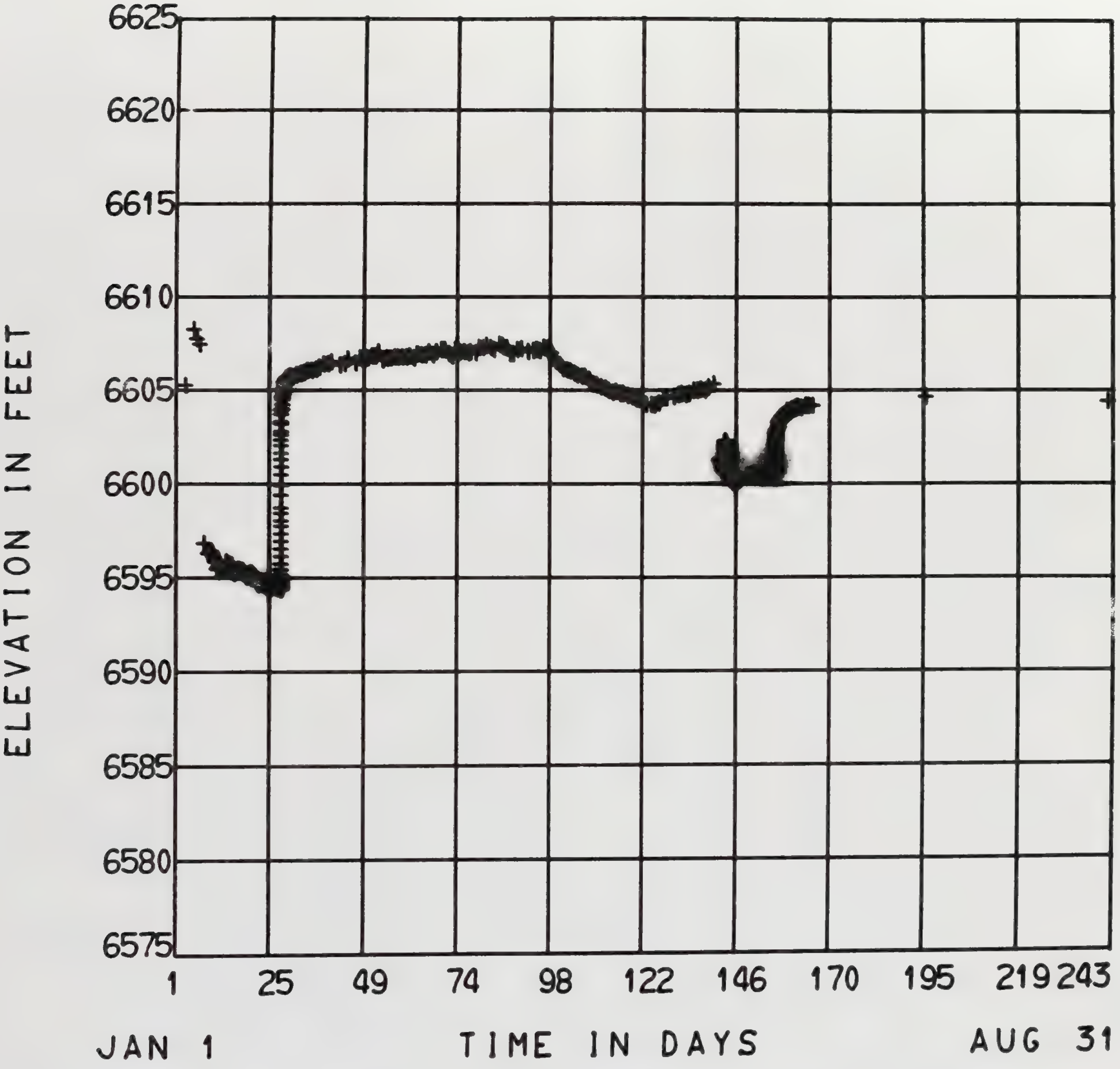


AM-3 HYDROGRAPH UPPR AQUIFER

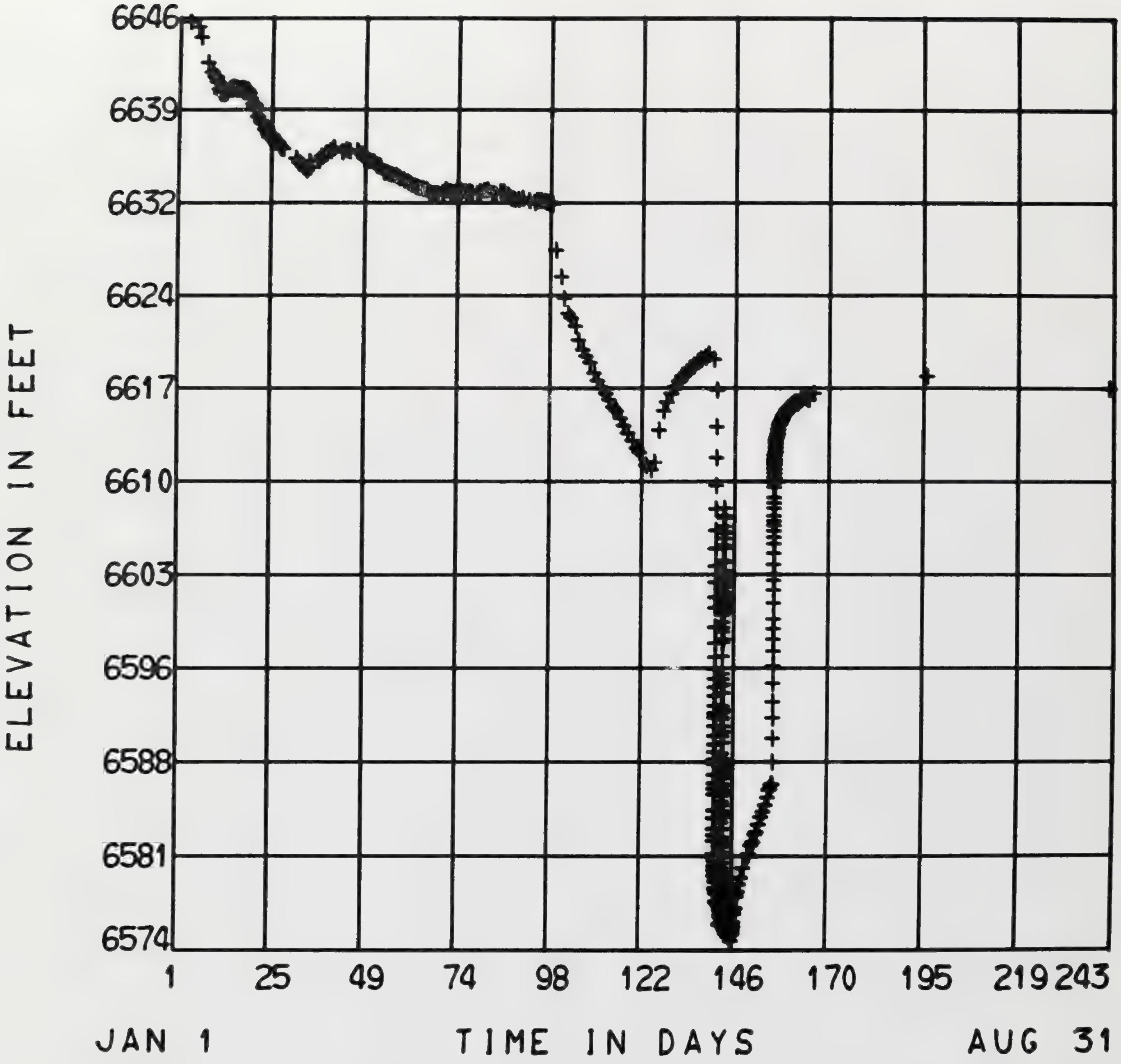


AM-3 HYDROGRAPH LOWR AQUIFER

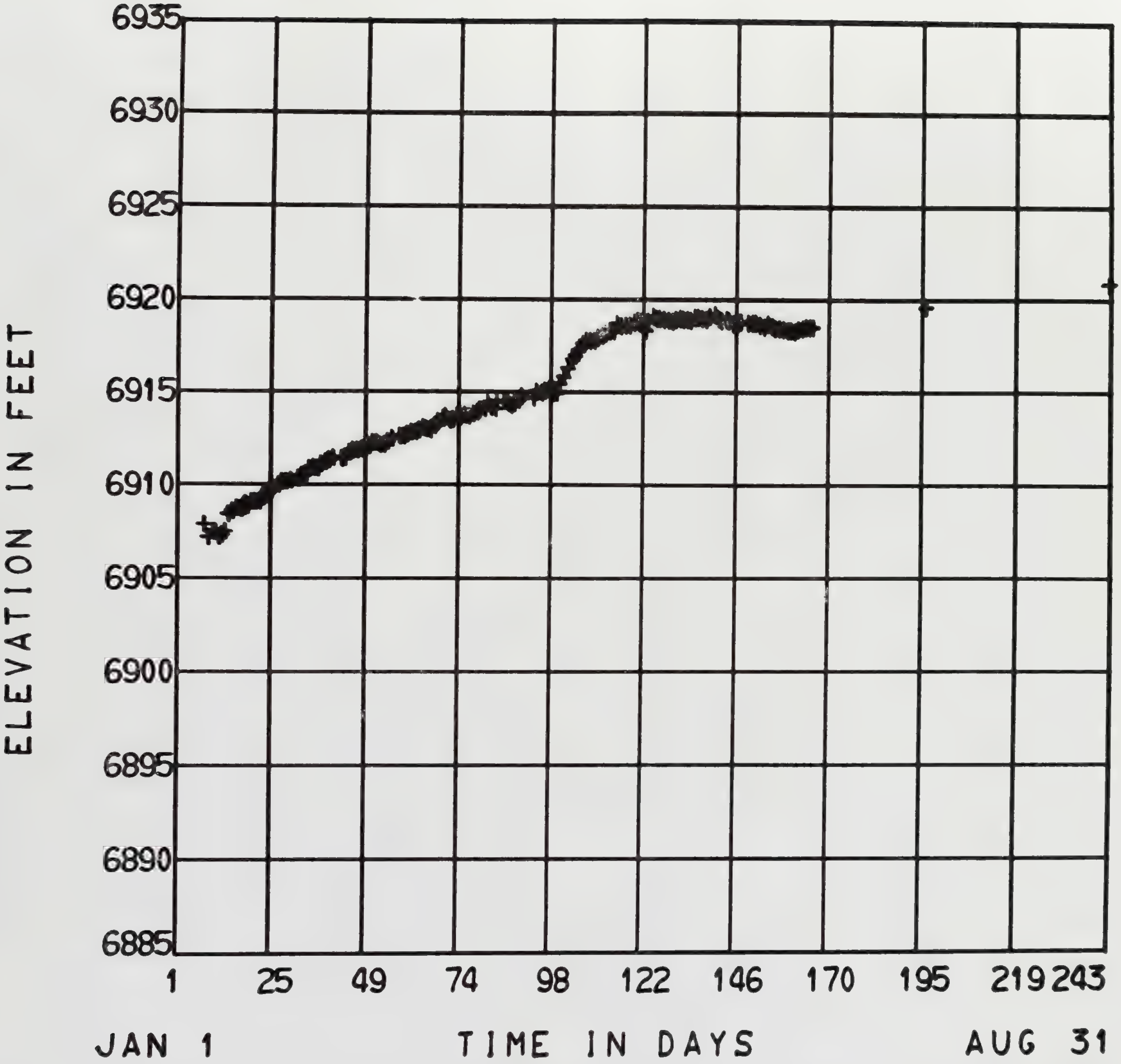
RBOSP



CE 702 HYDROGRAPH UPPR AQUIFER



CE 702 HYDROGRAPH LOWR AQUIFER



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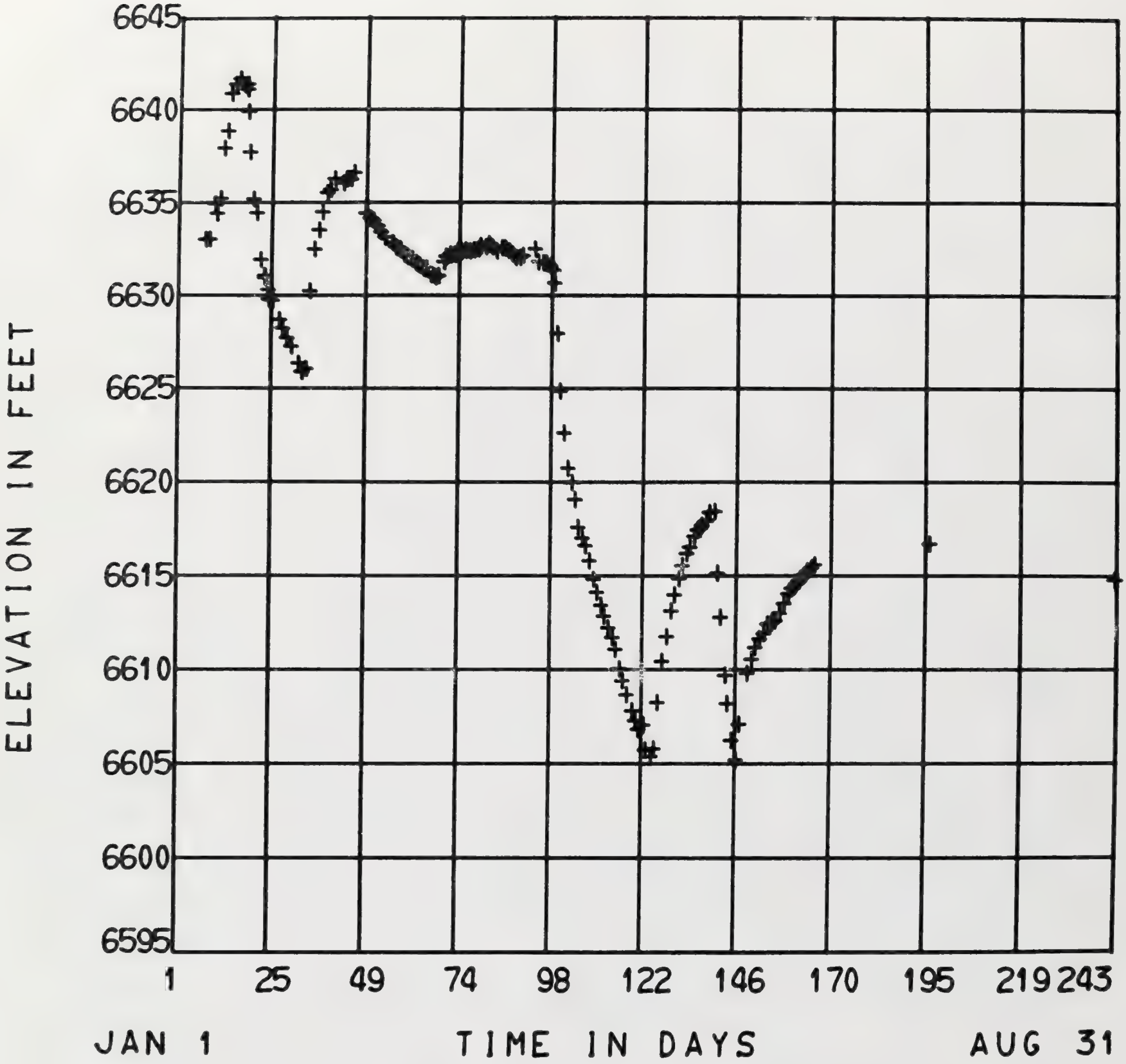

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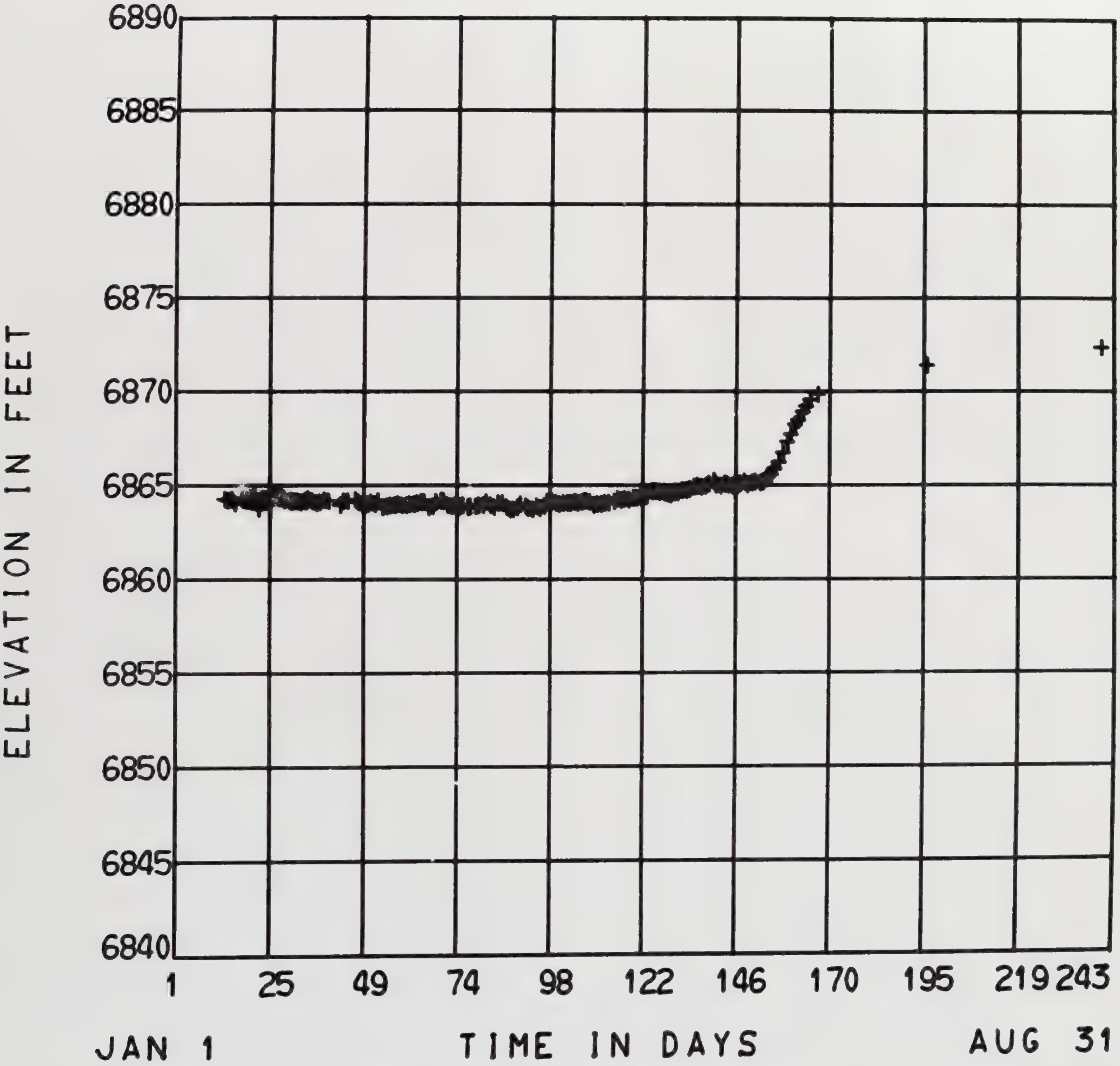

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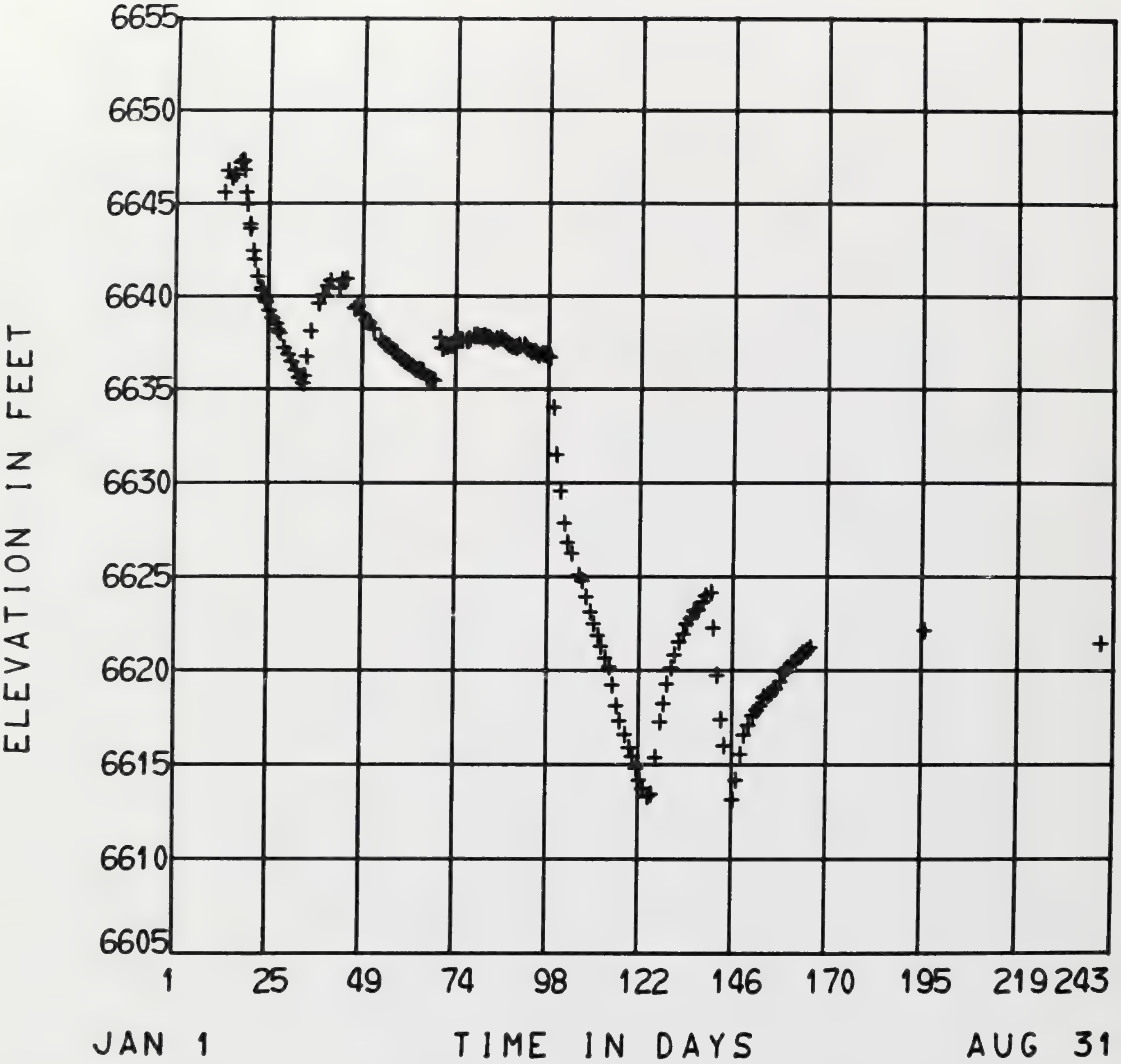

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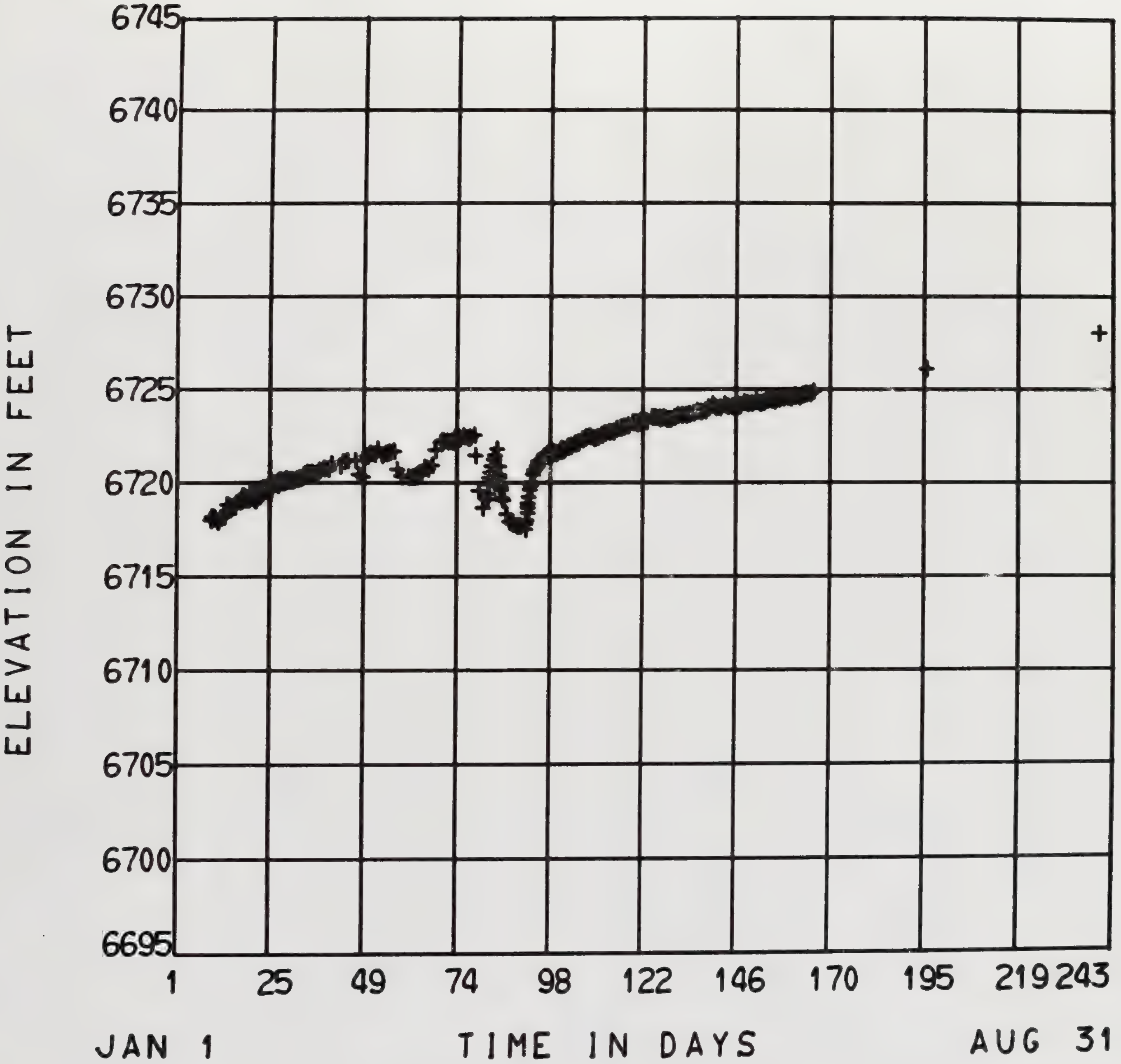

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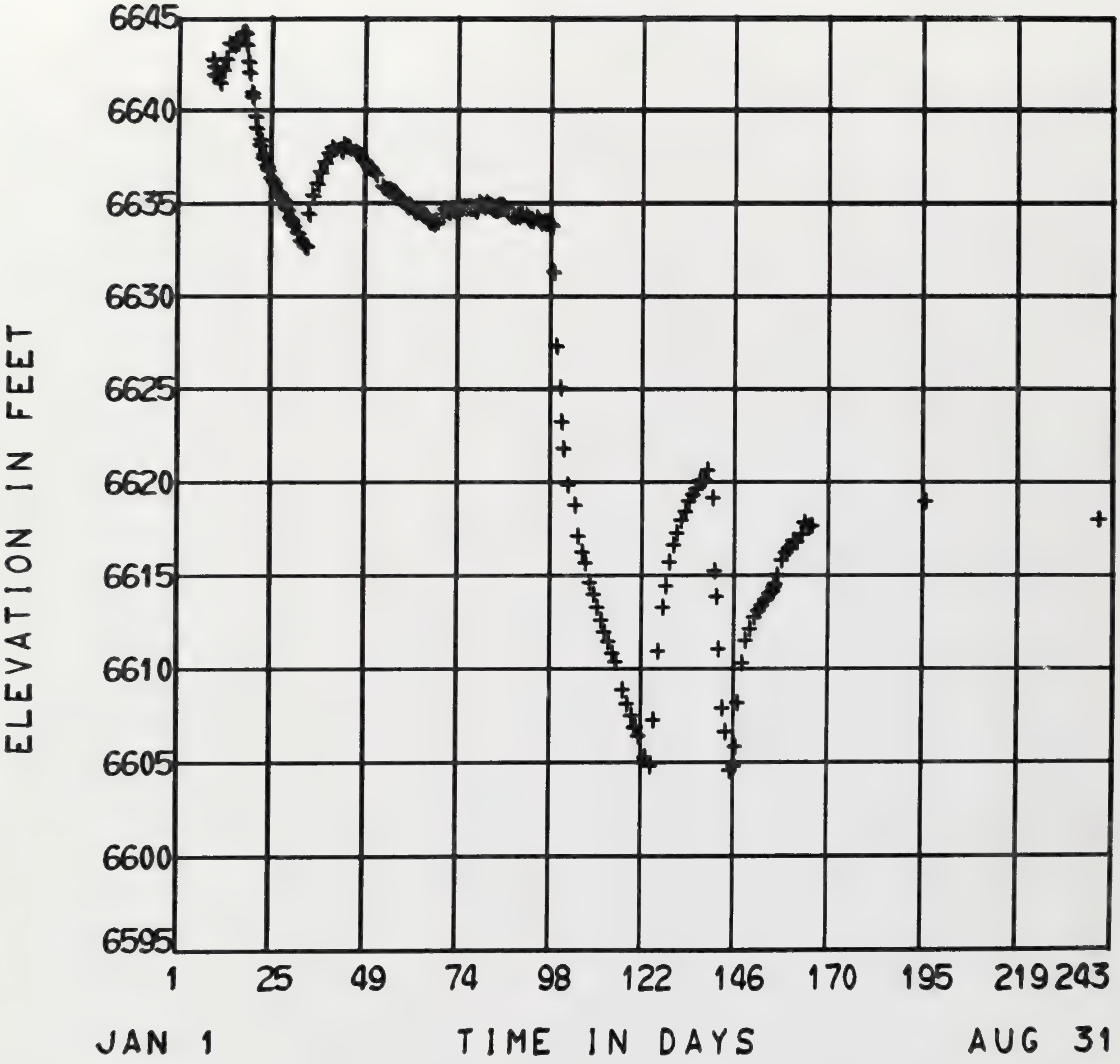

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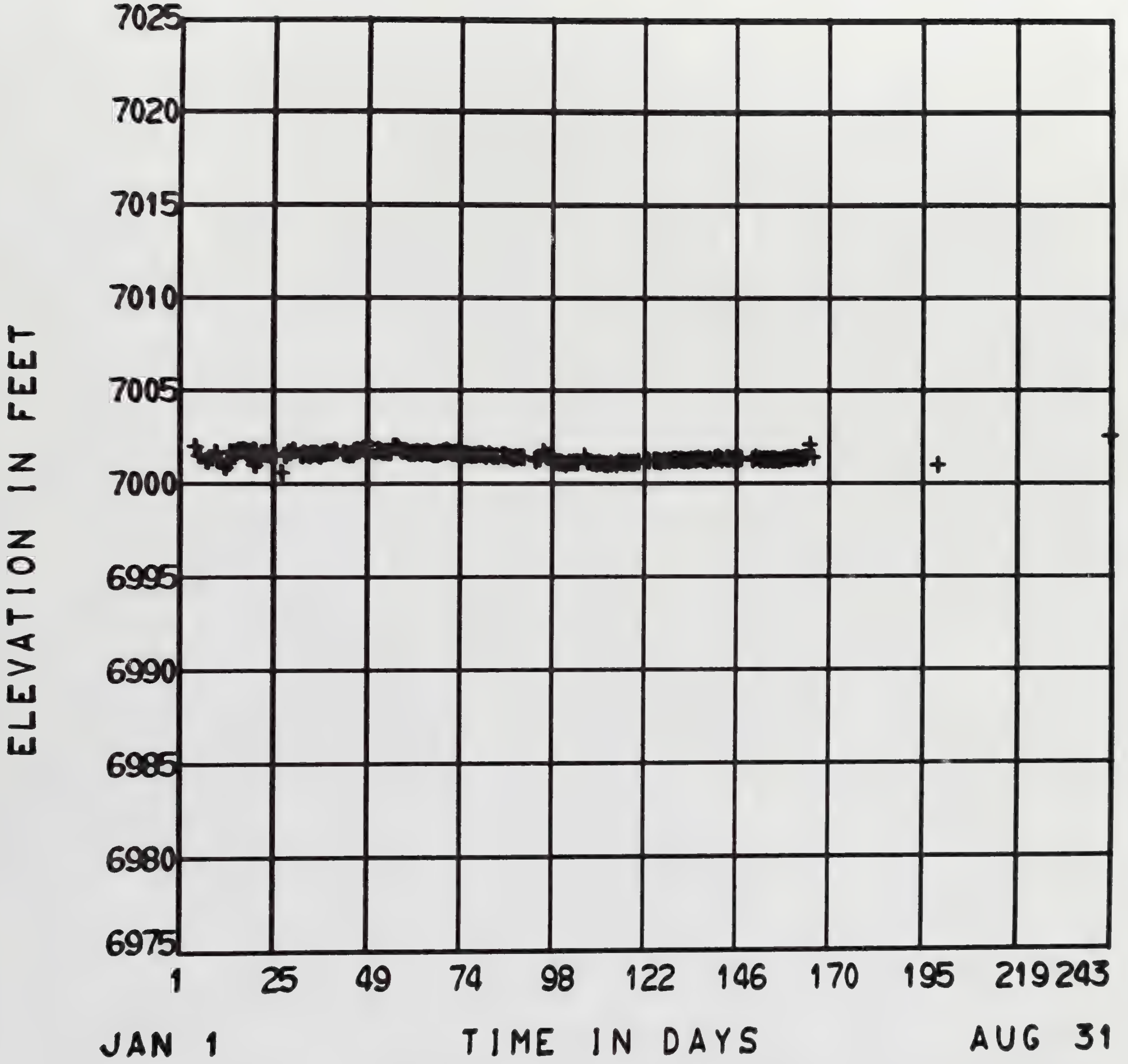

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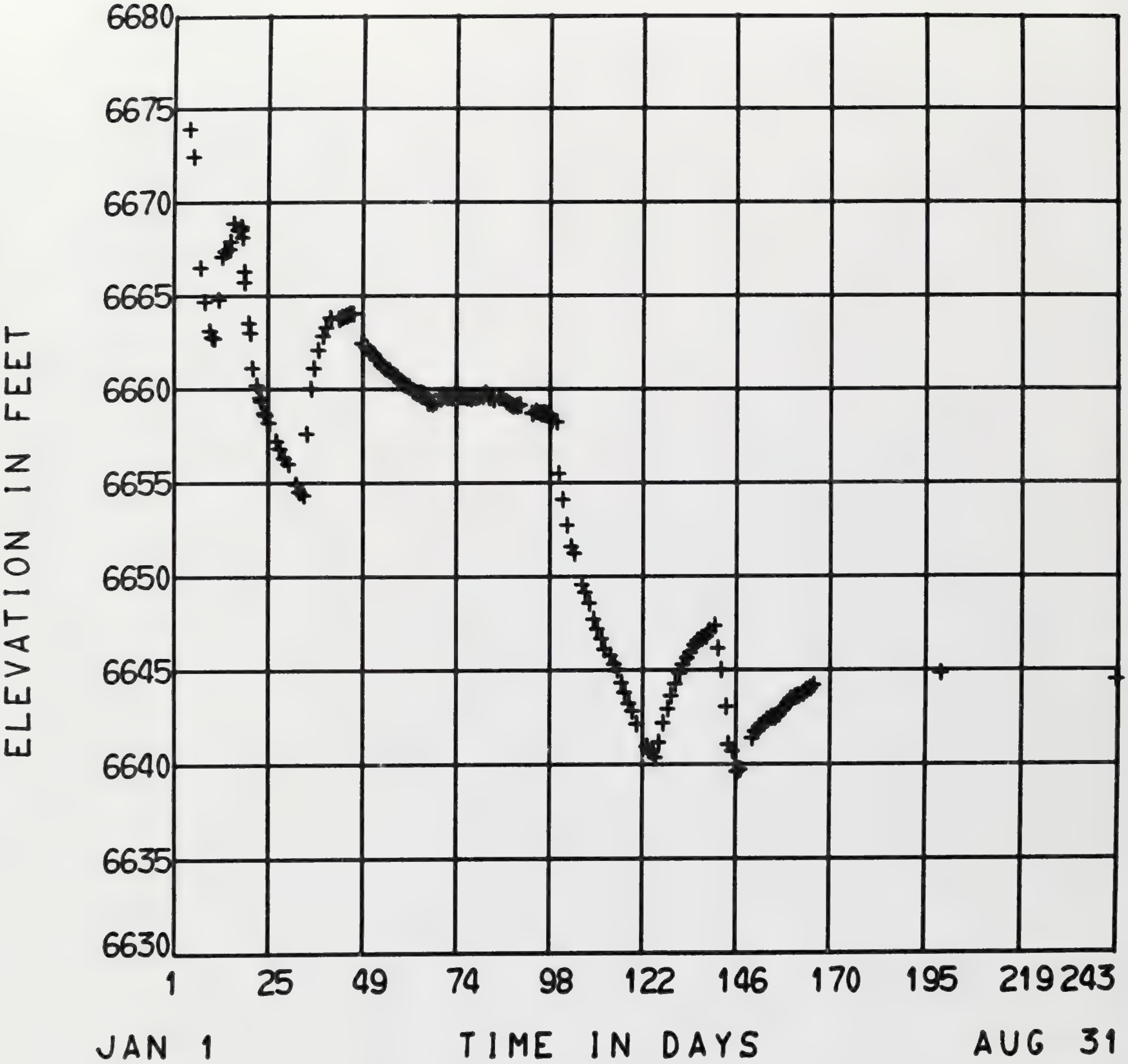

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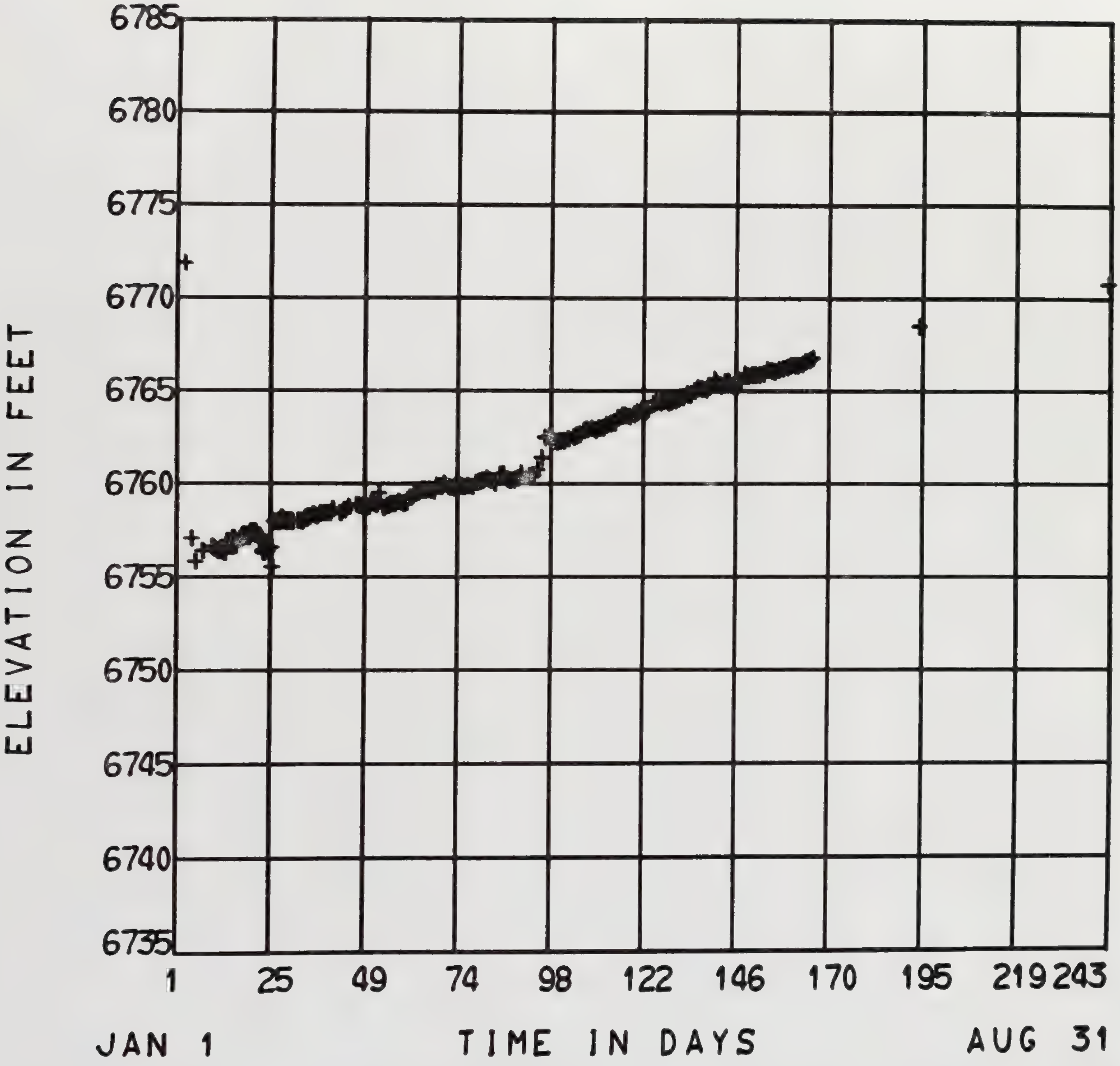

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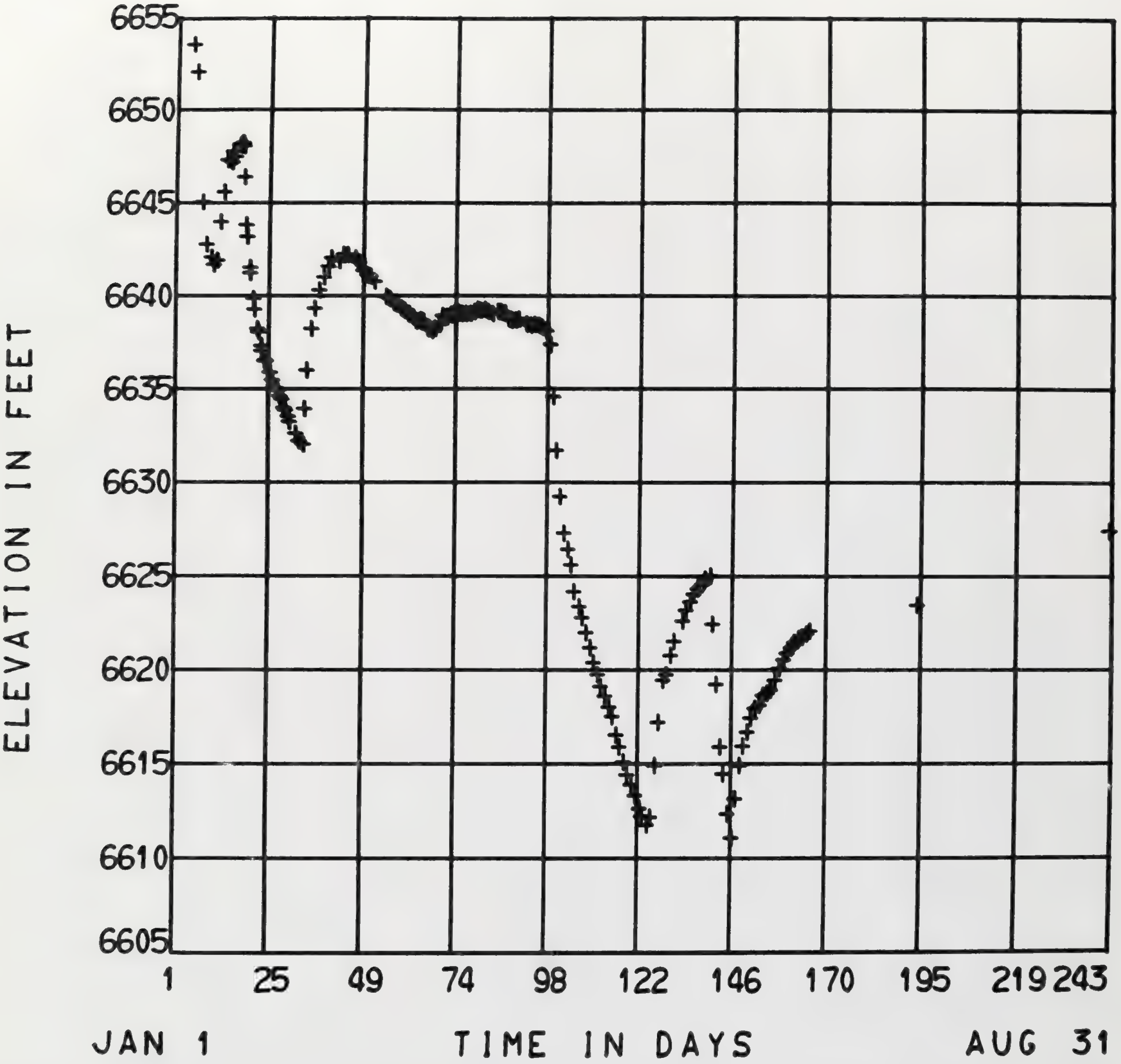

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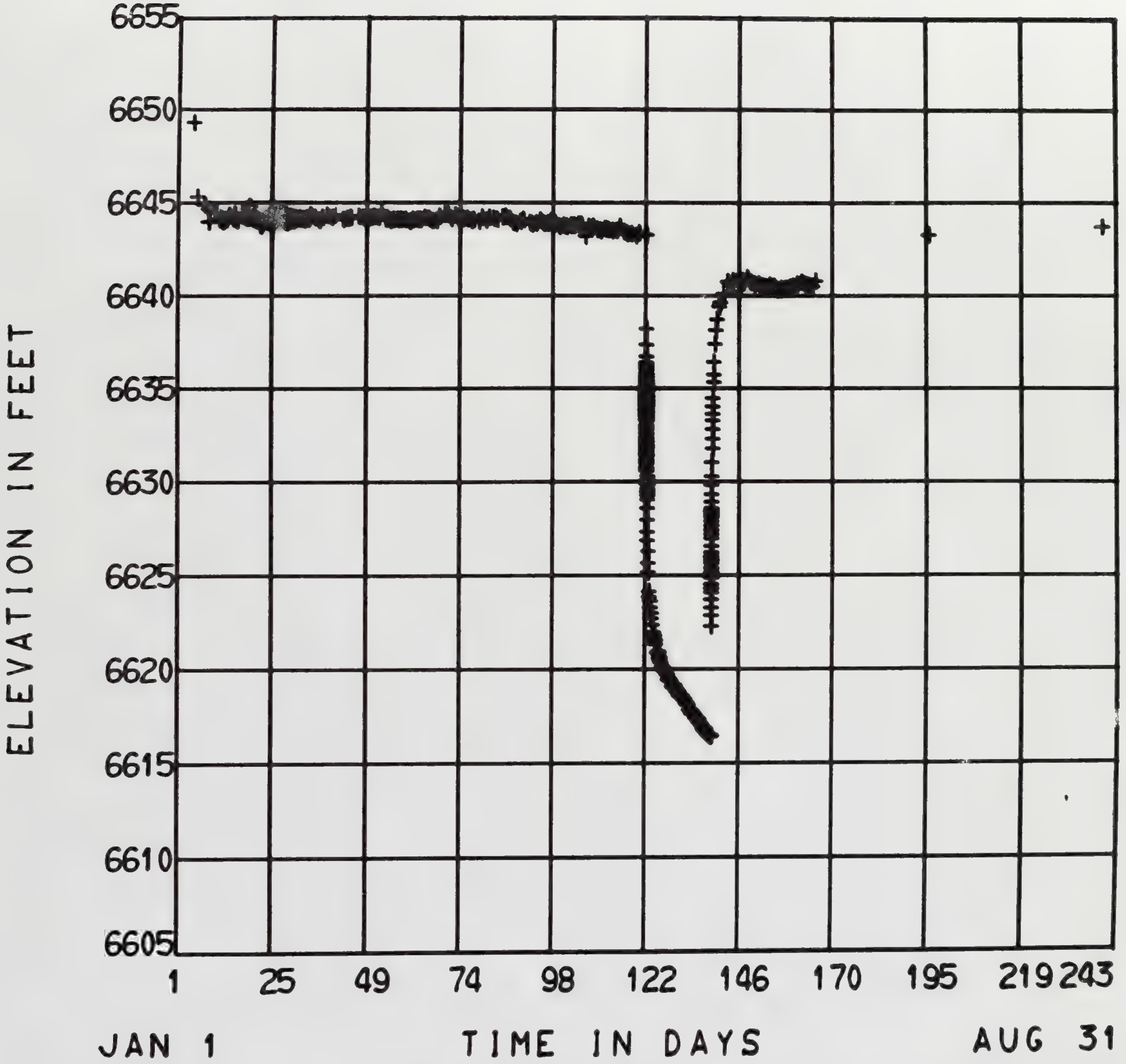

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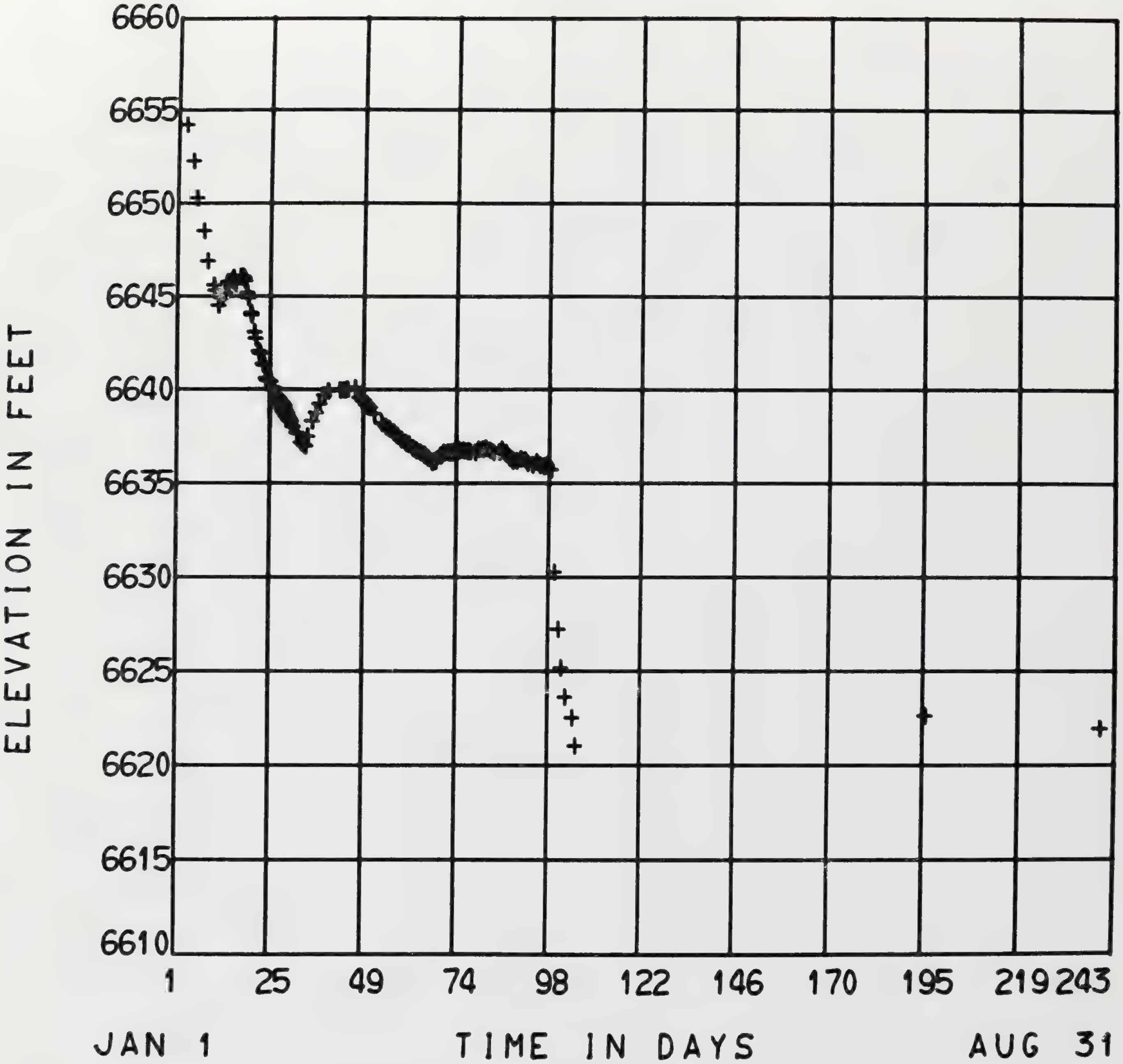

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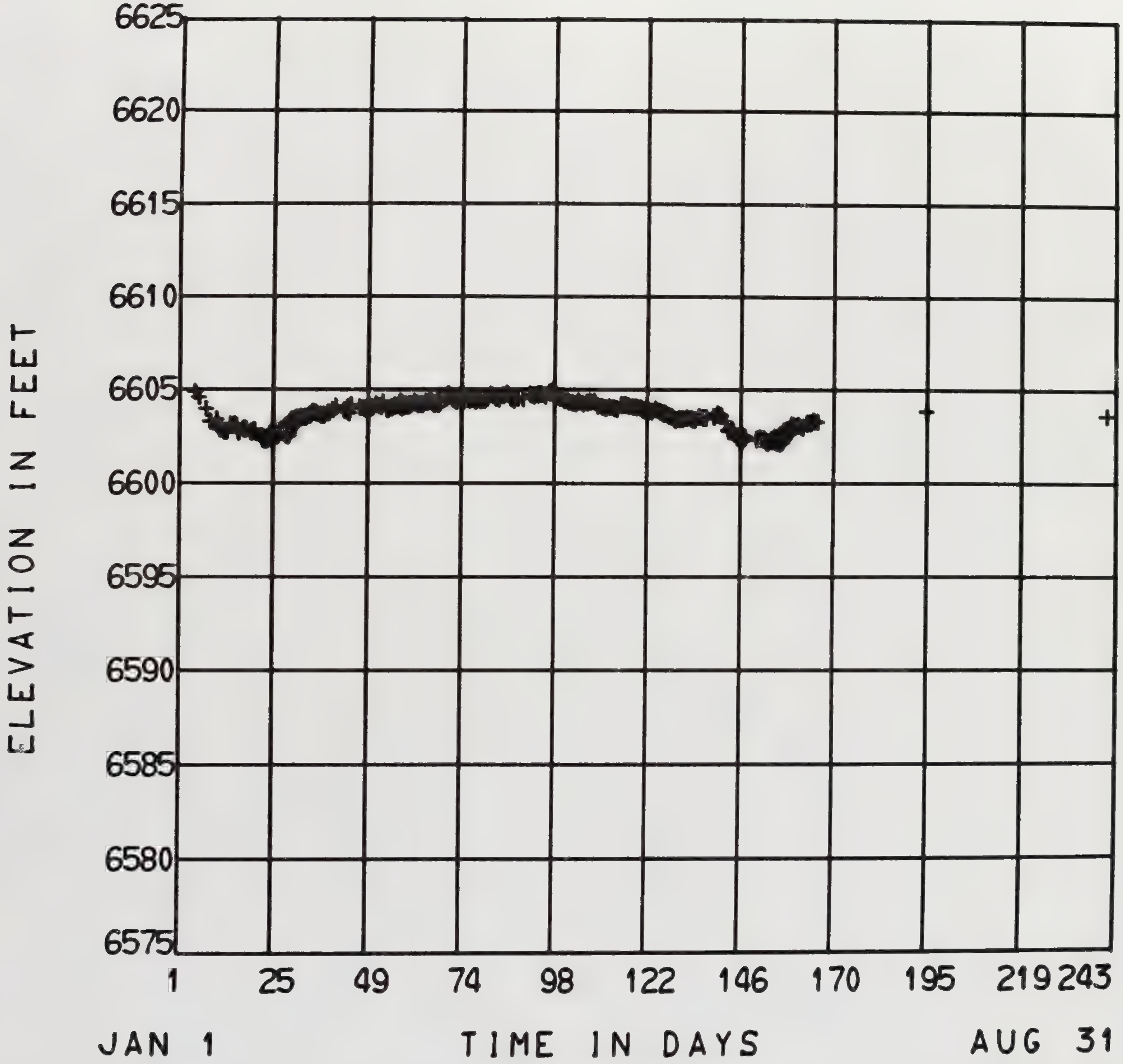

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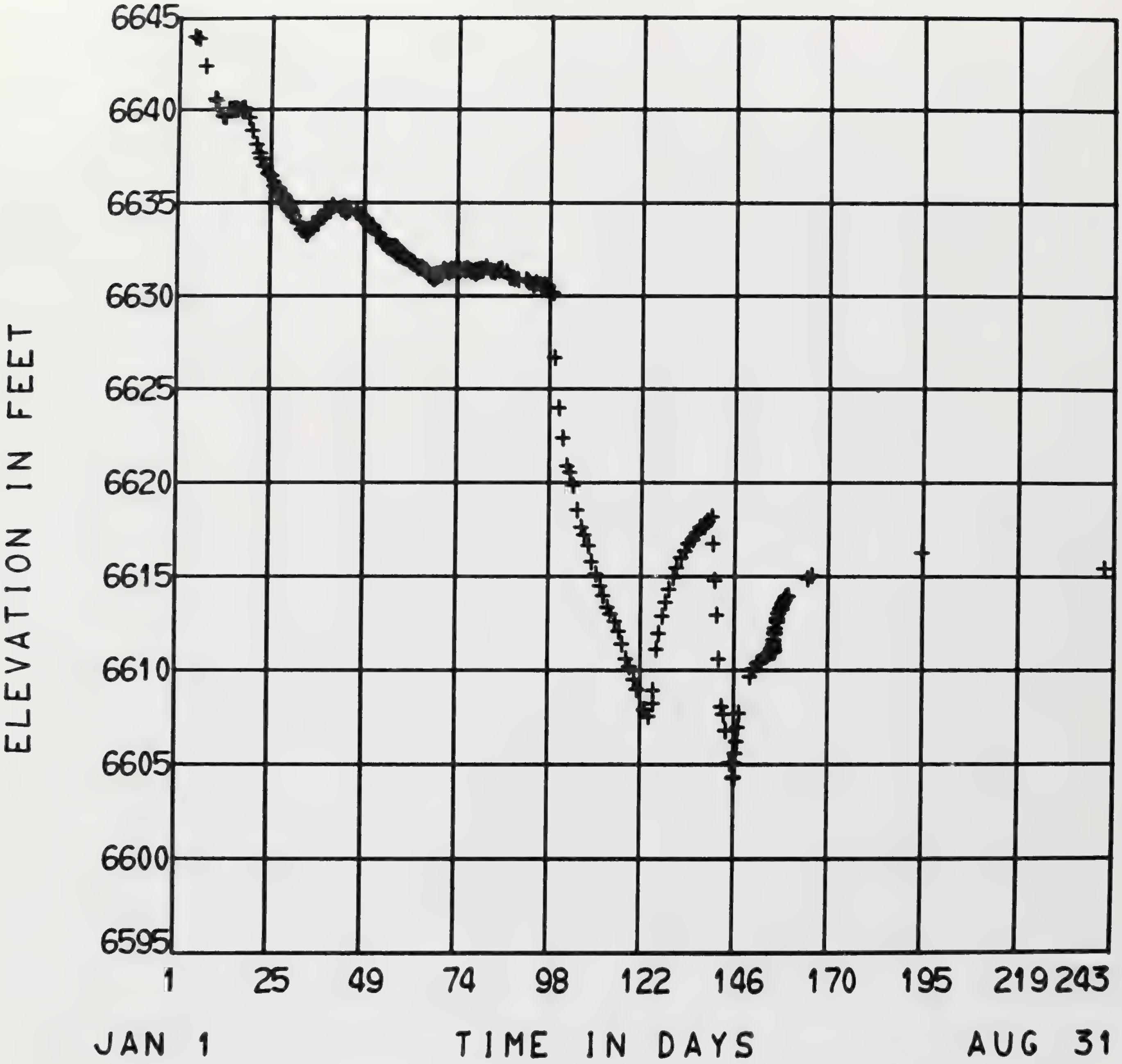

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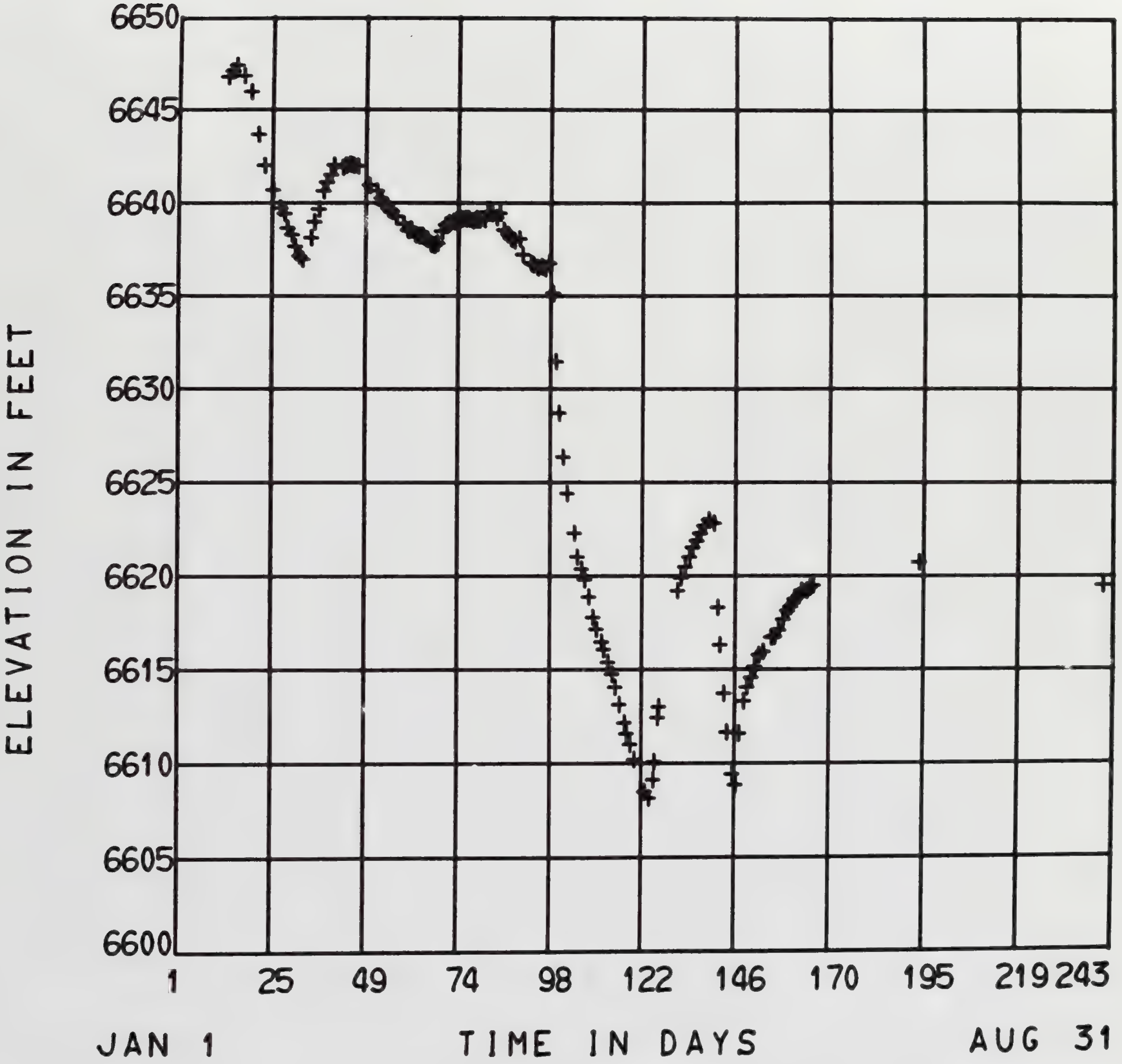

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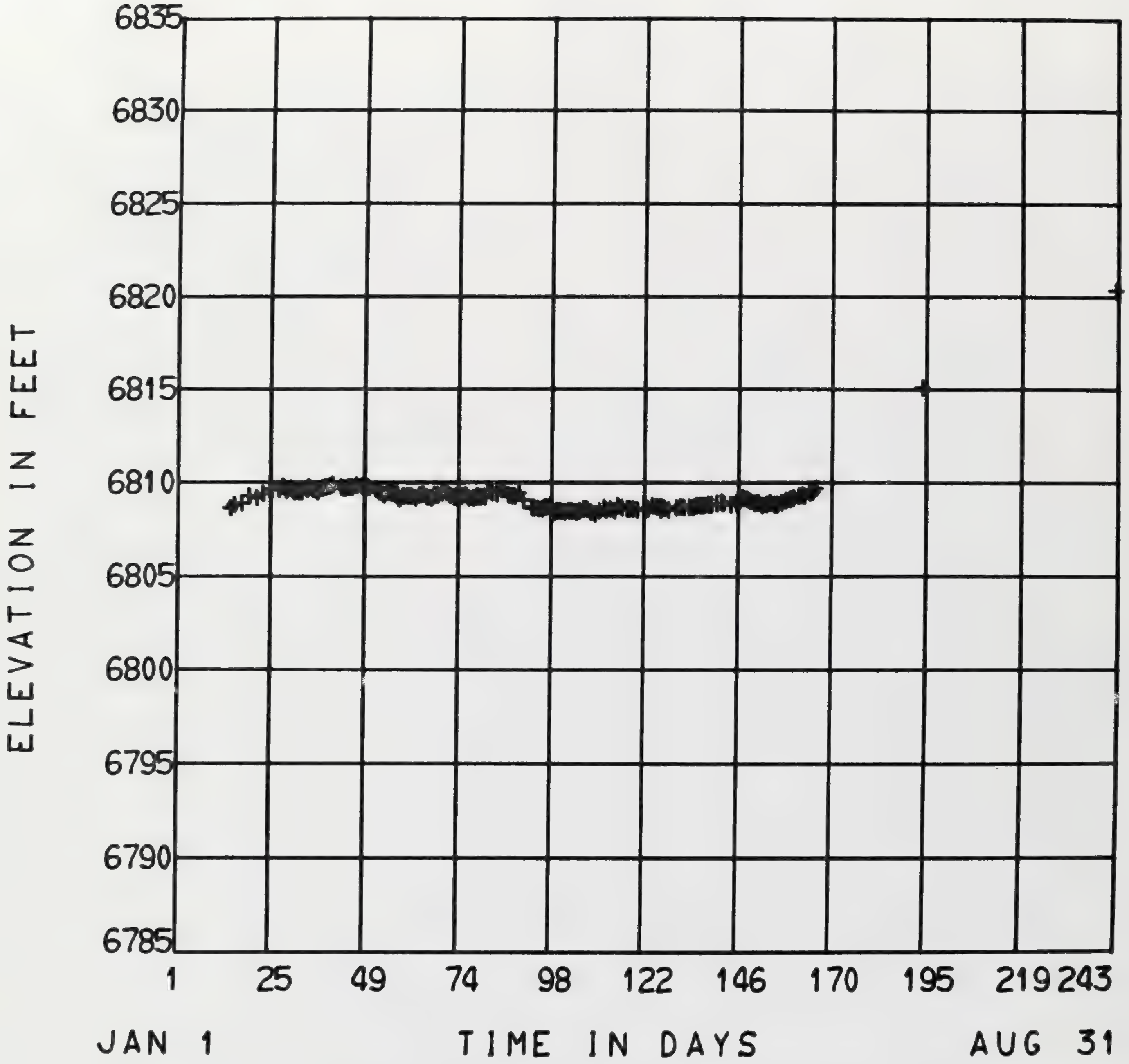
RBCSP PROGRESS REPORT



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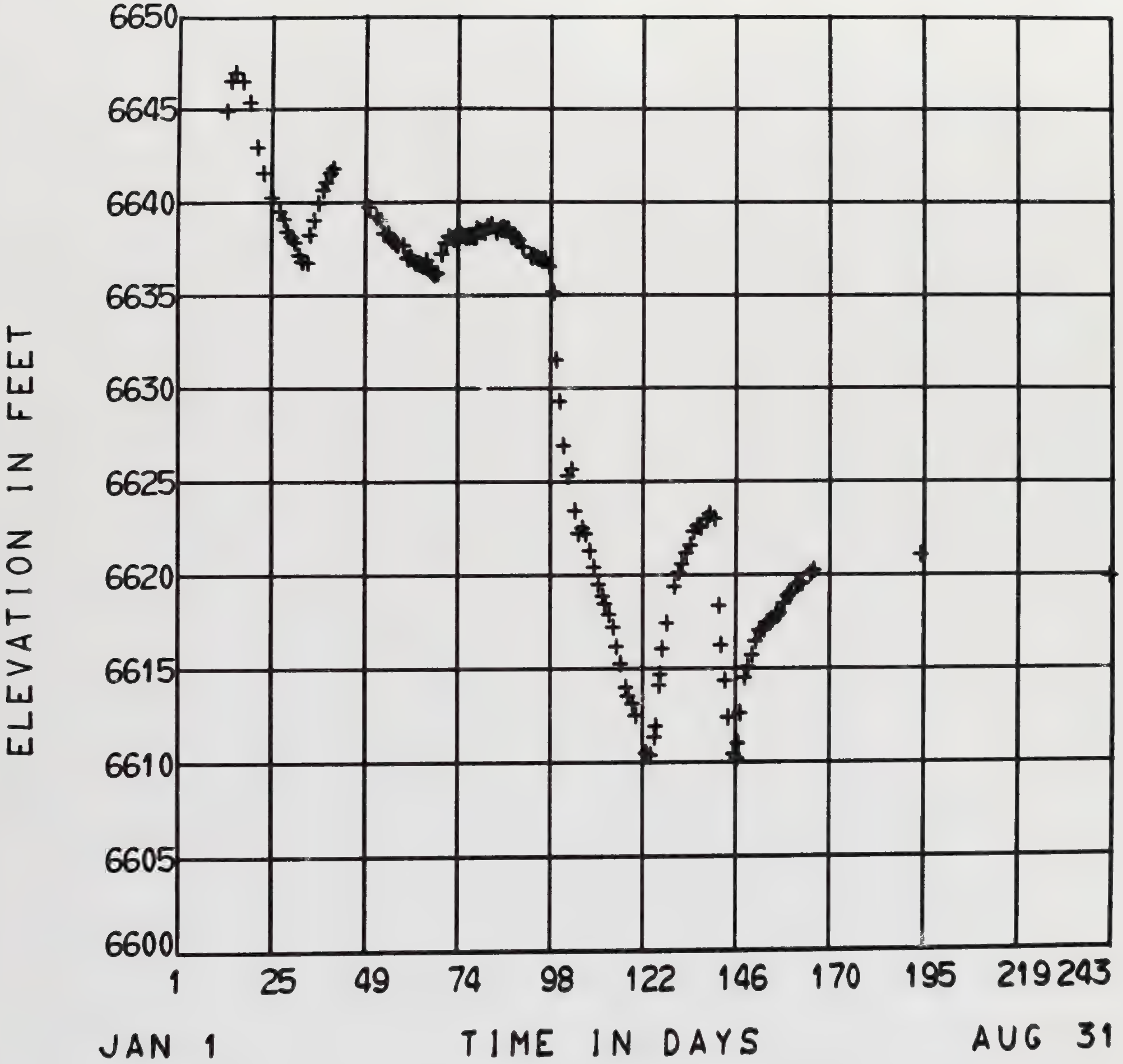

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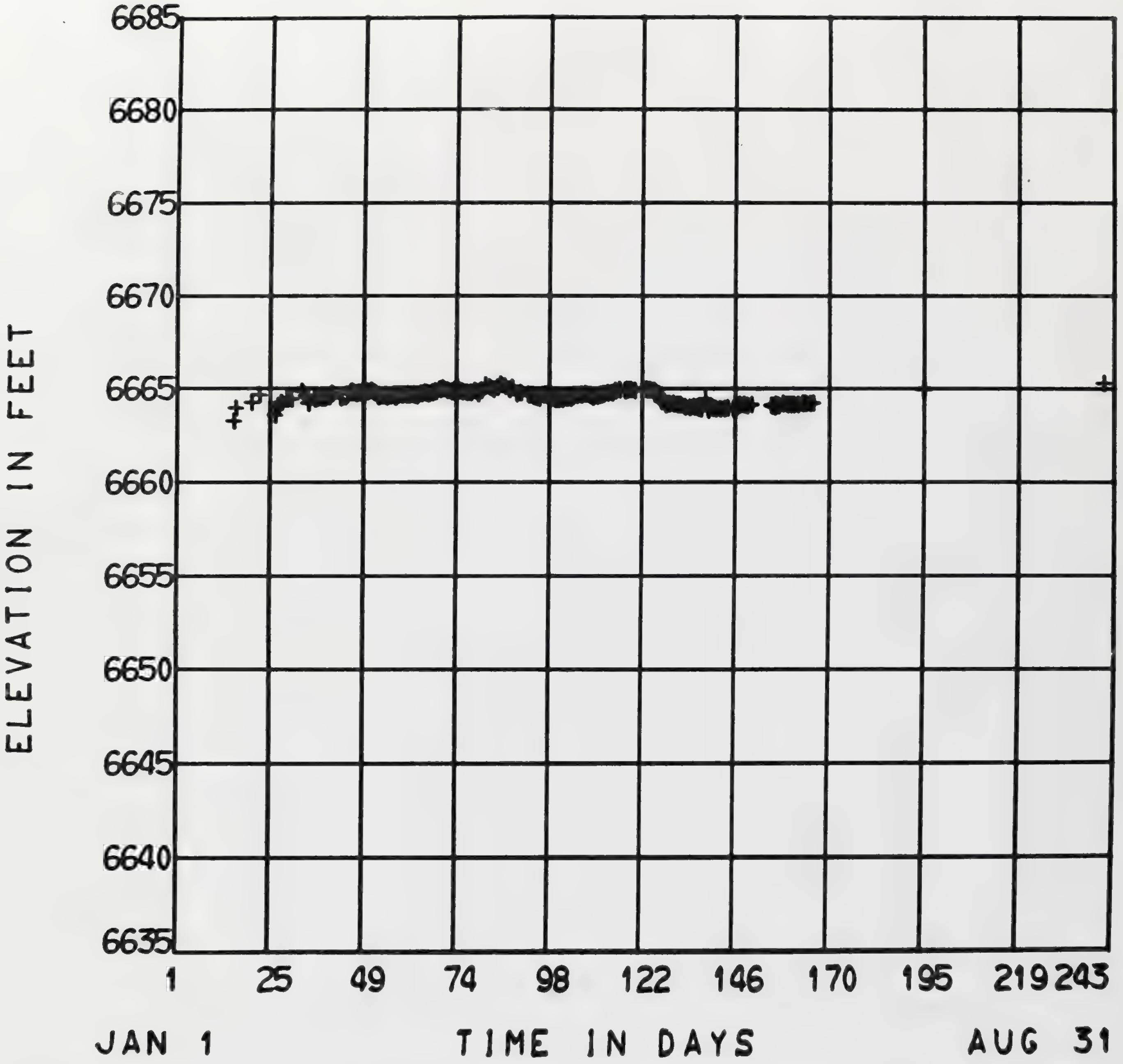

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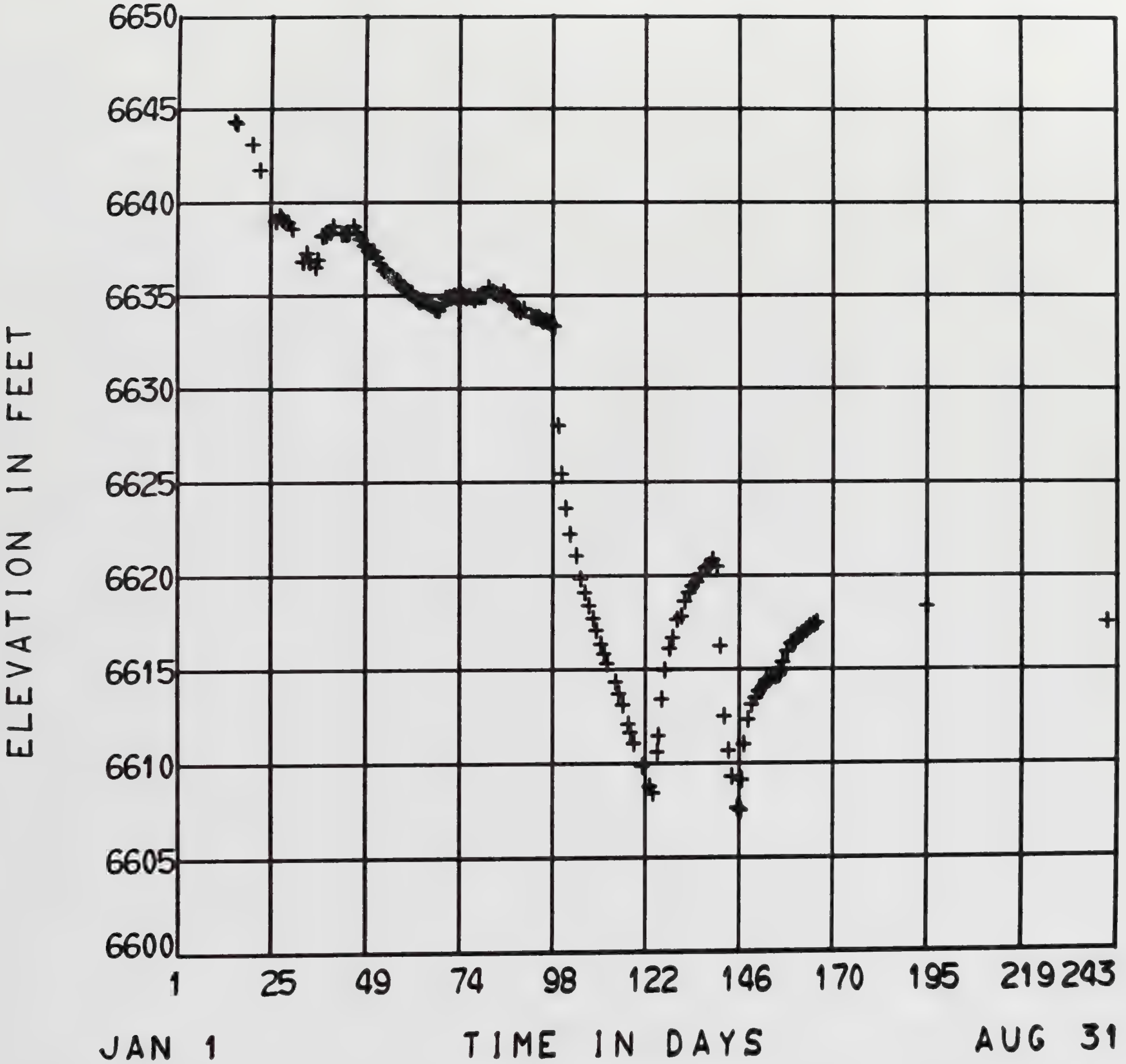

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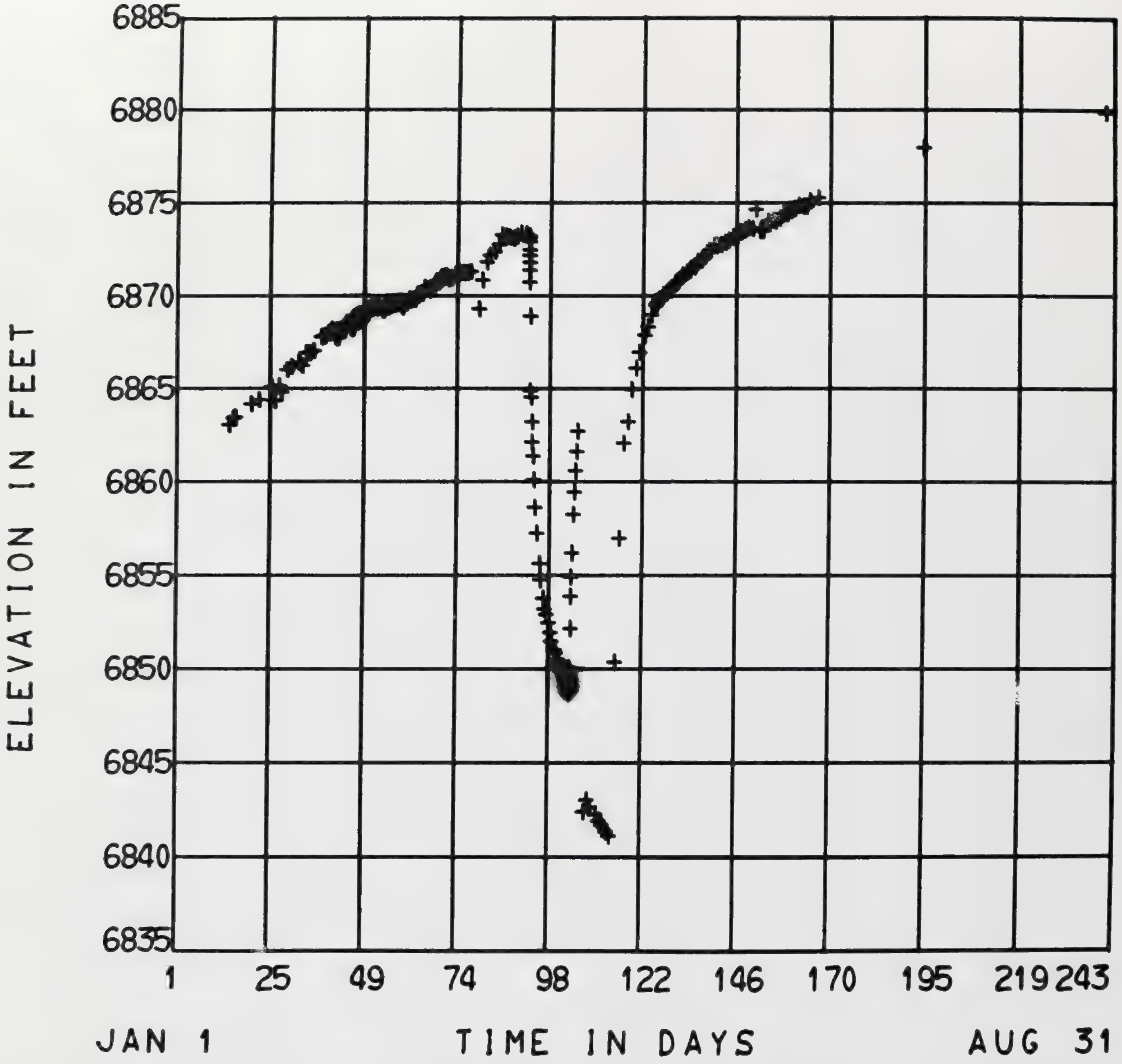

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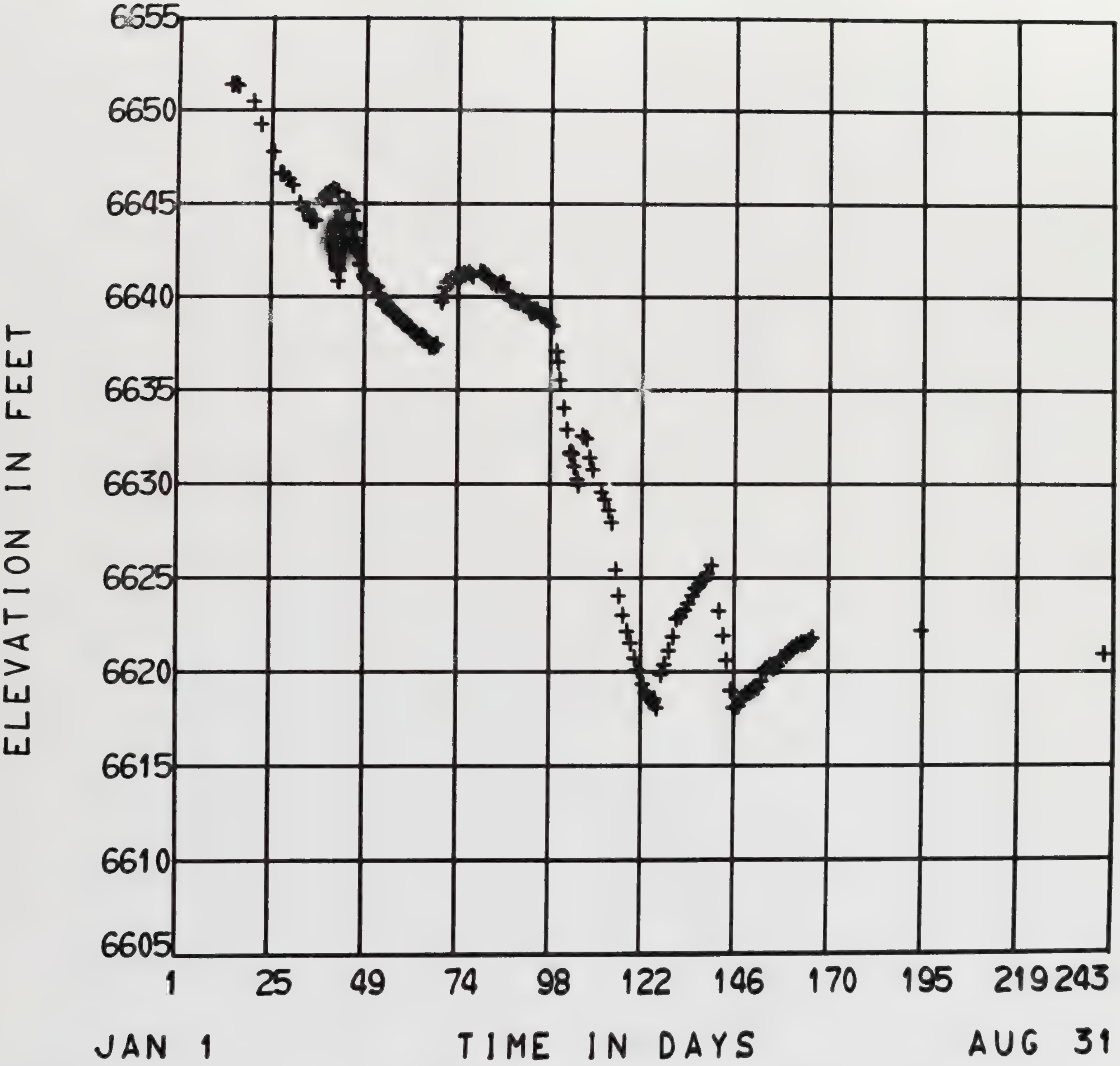

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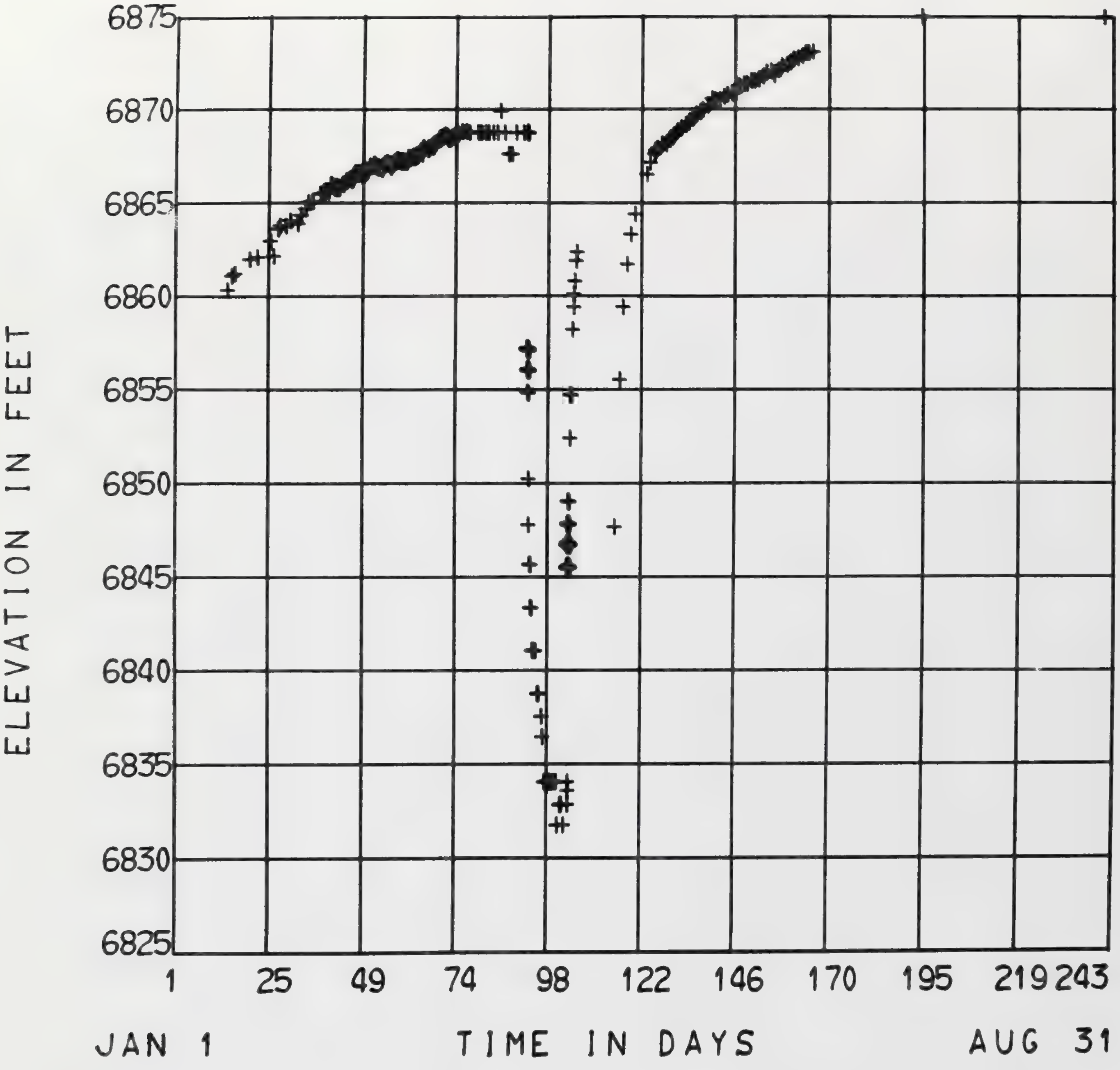

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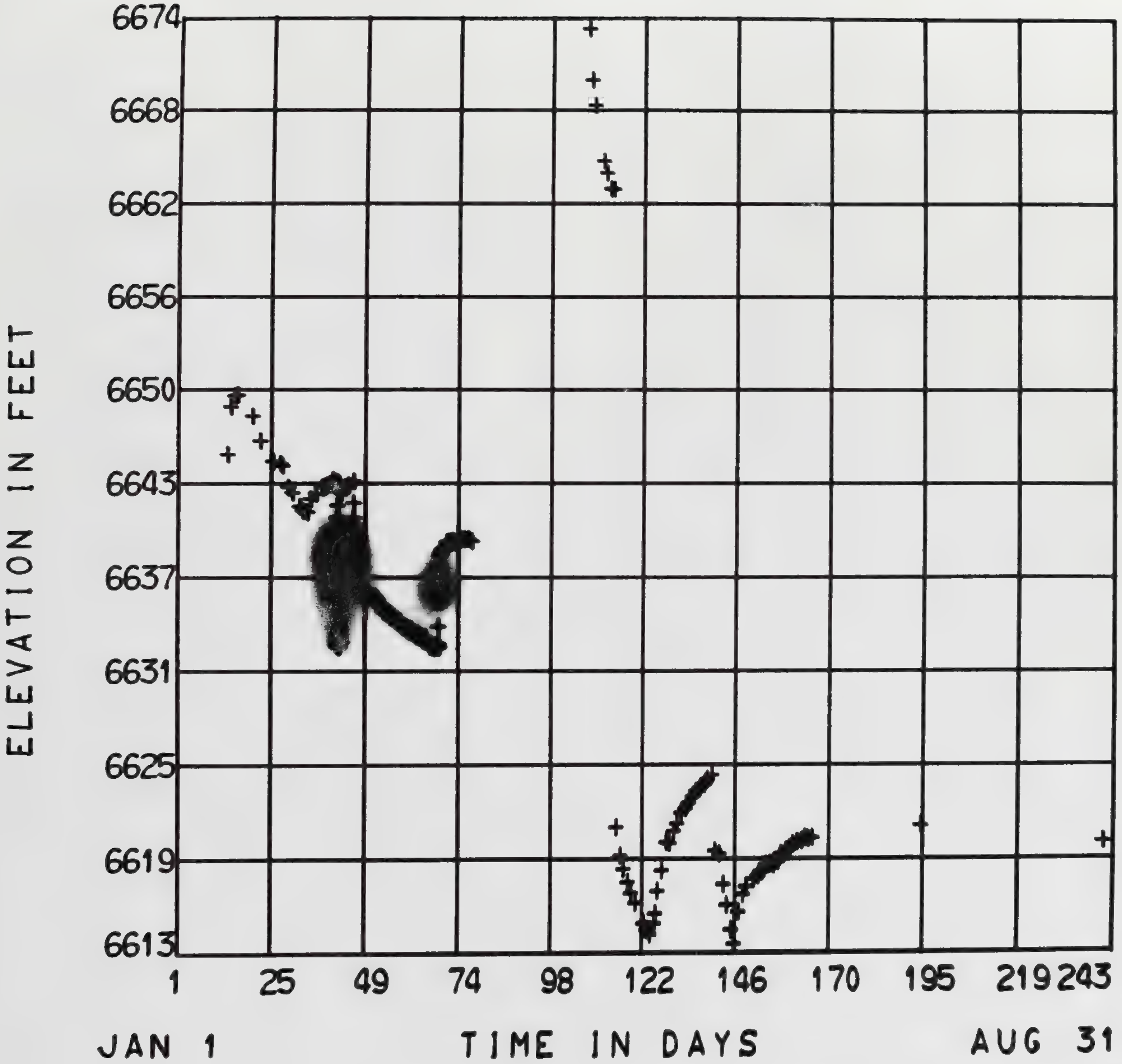

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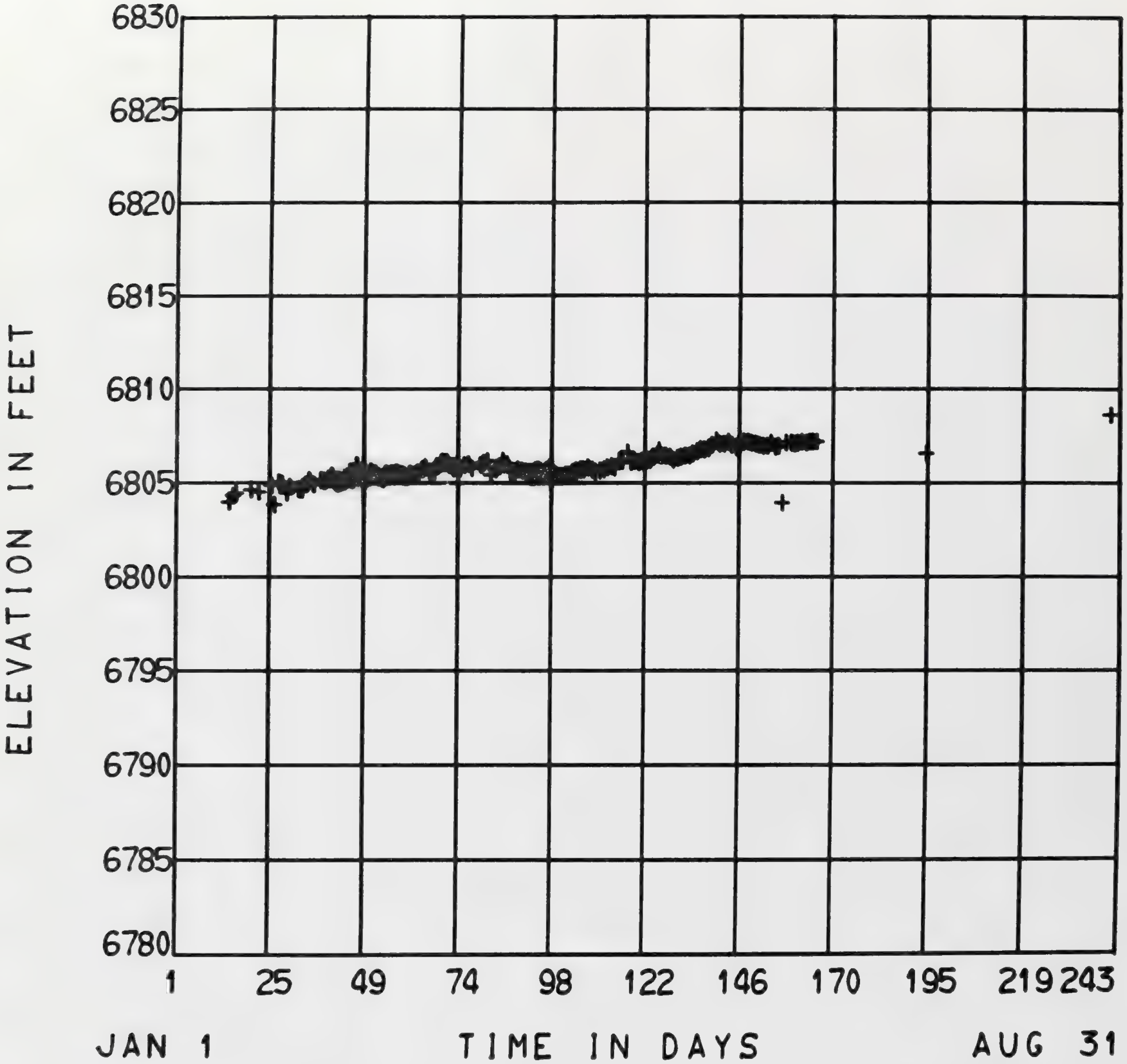

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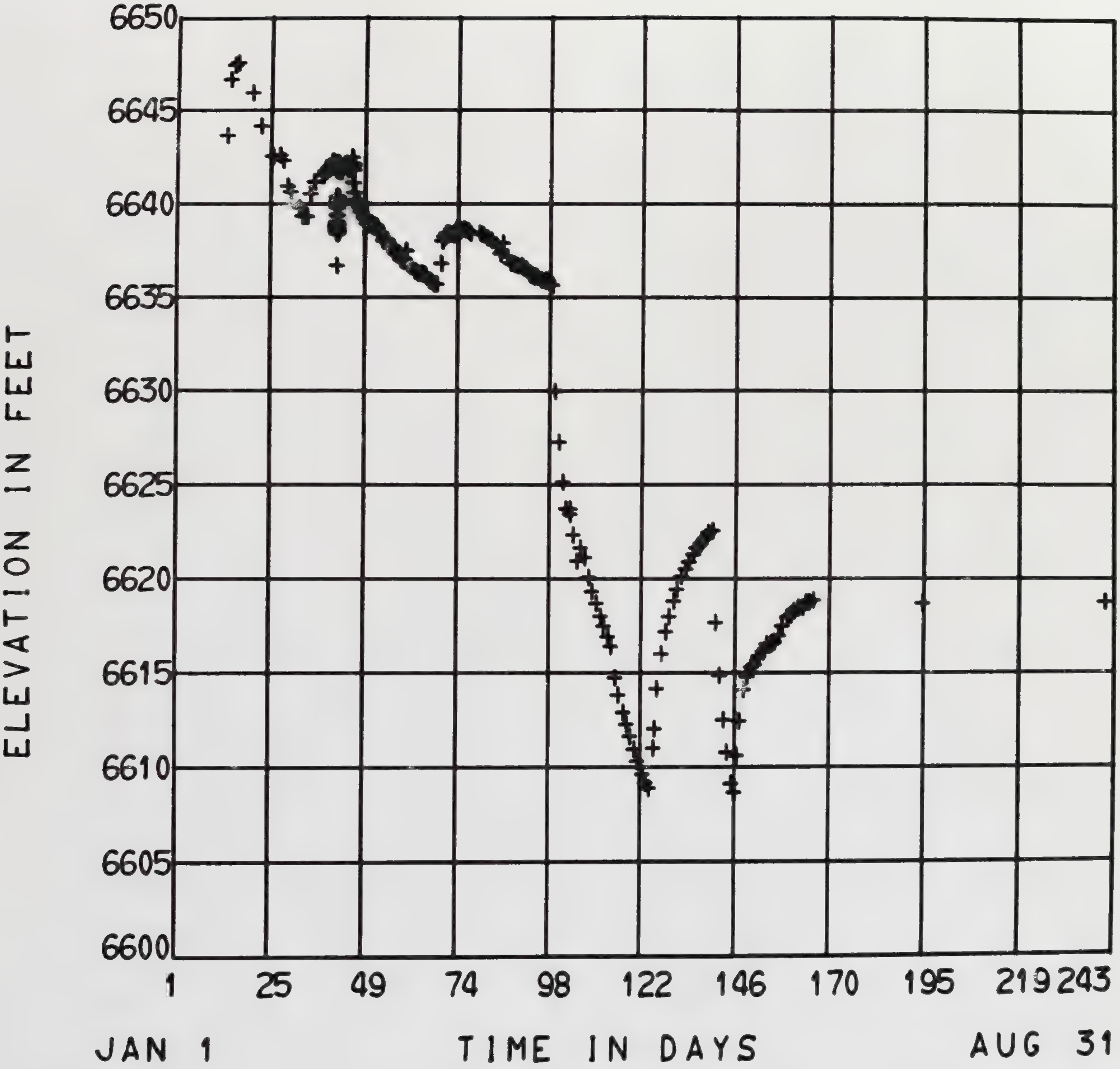

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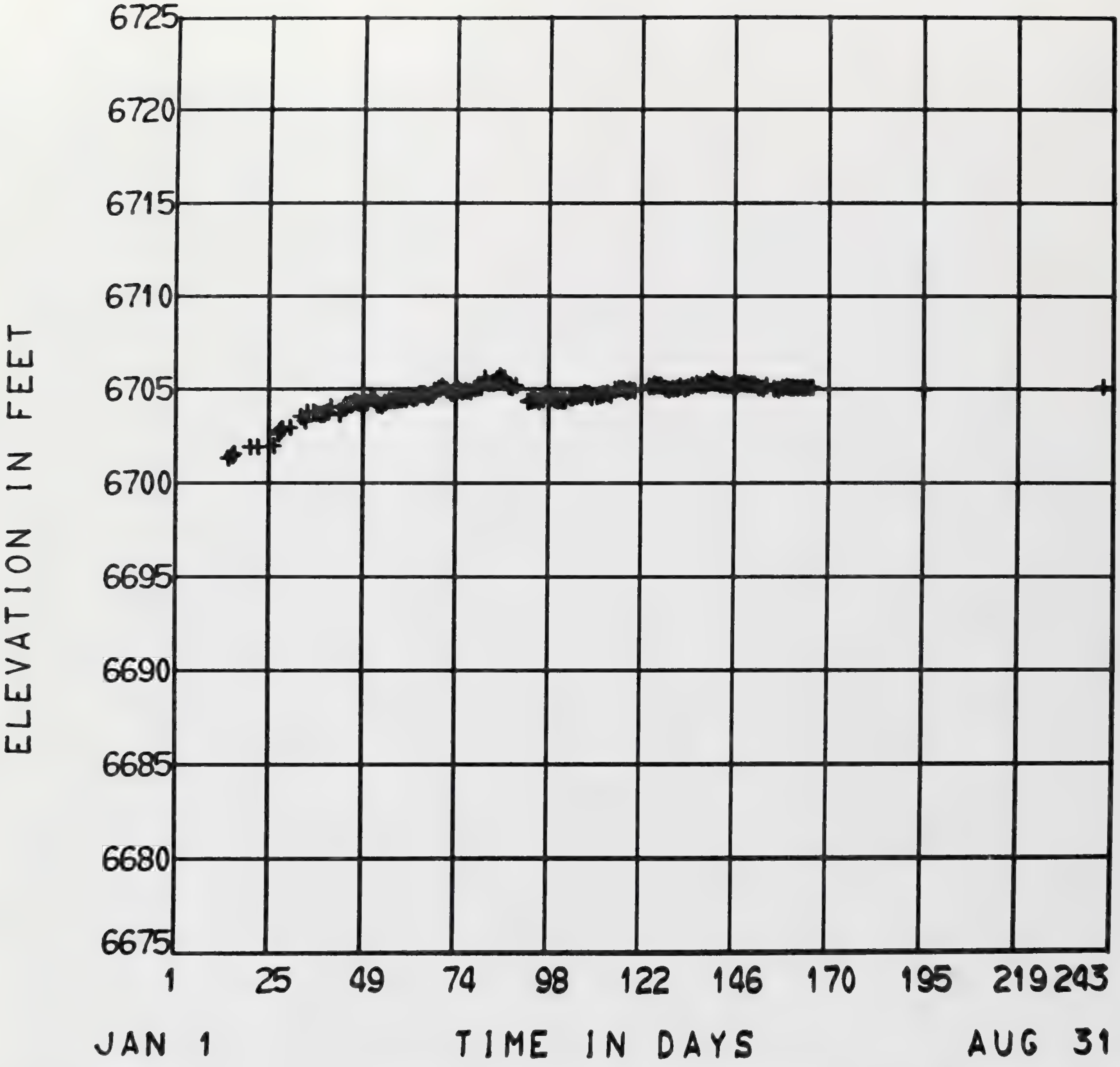

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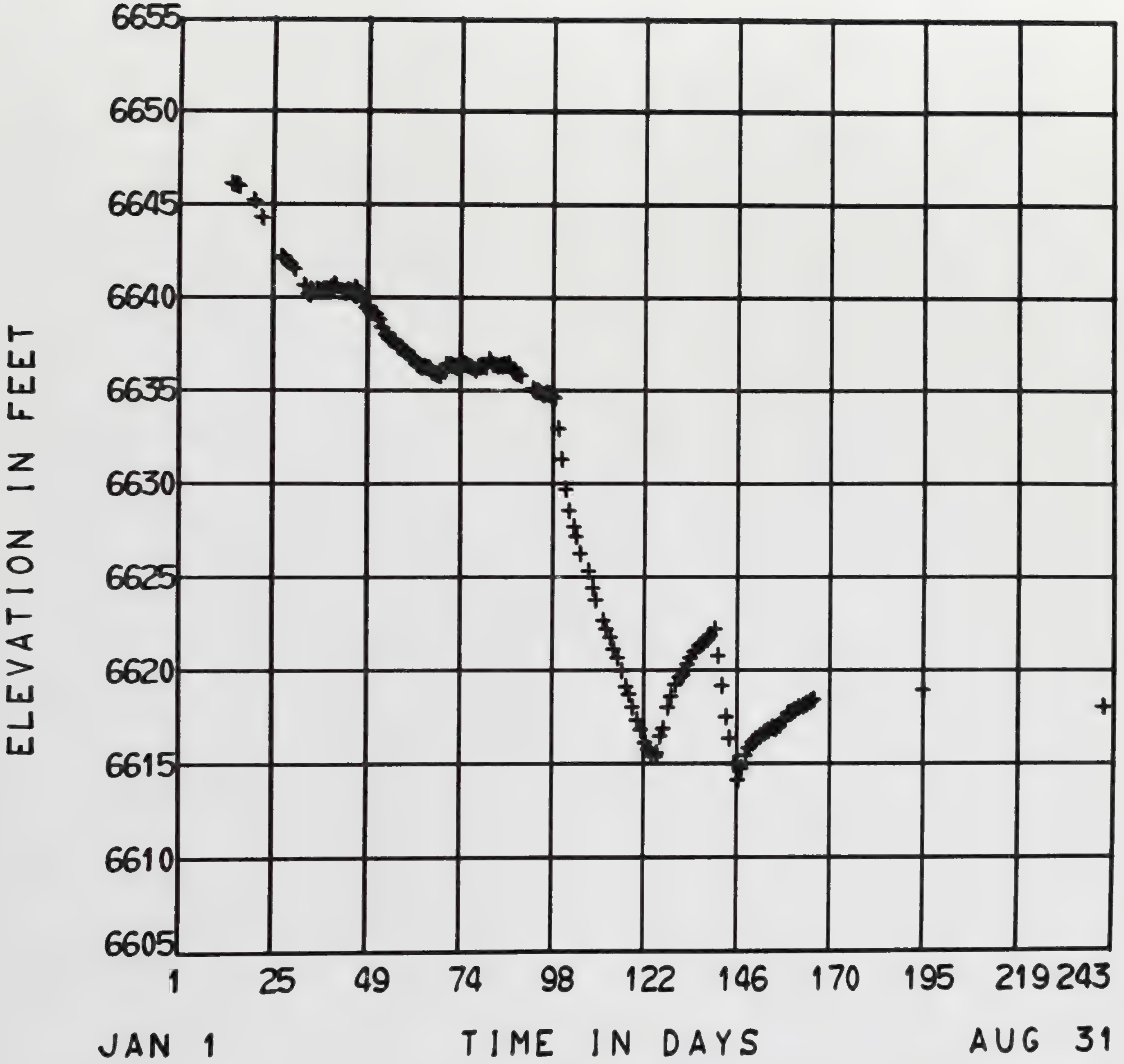

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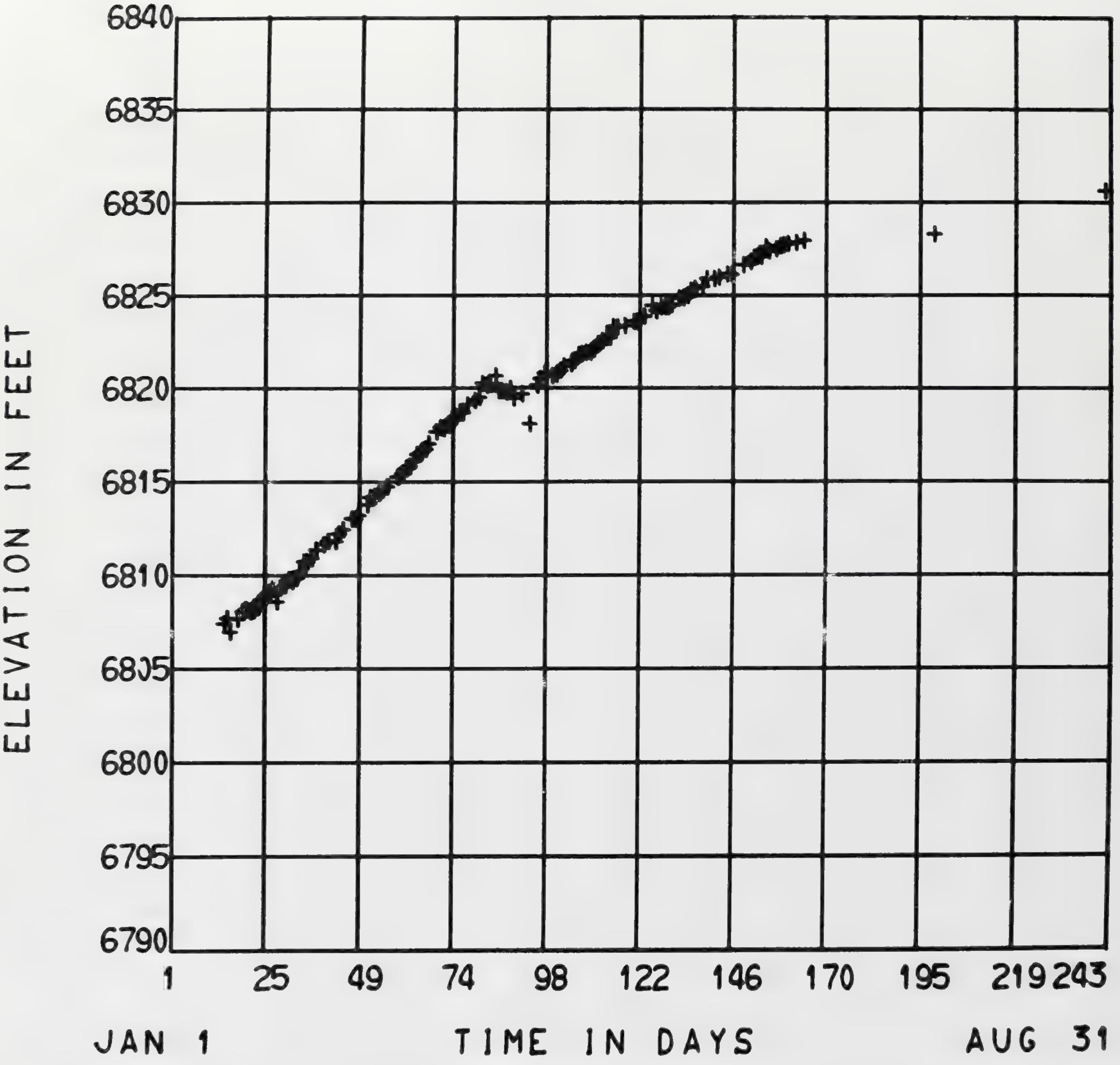

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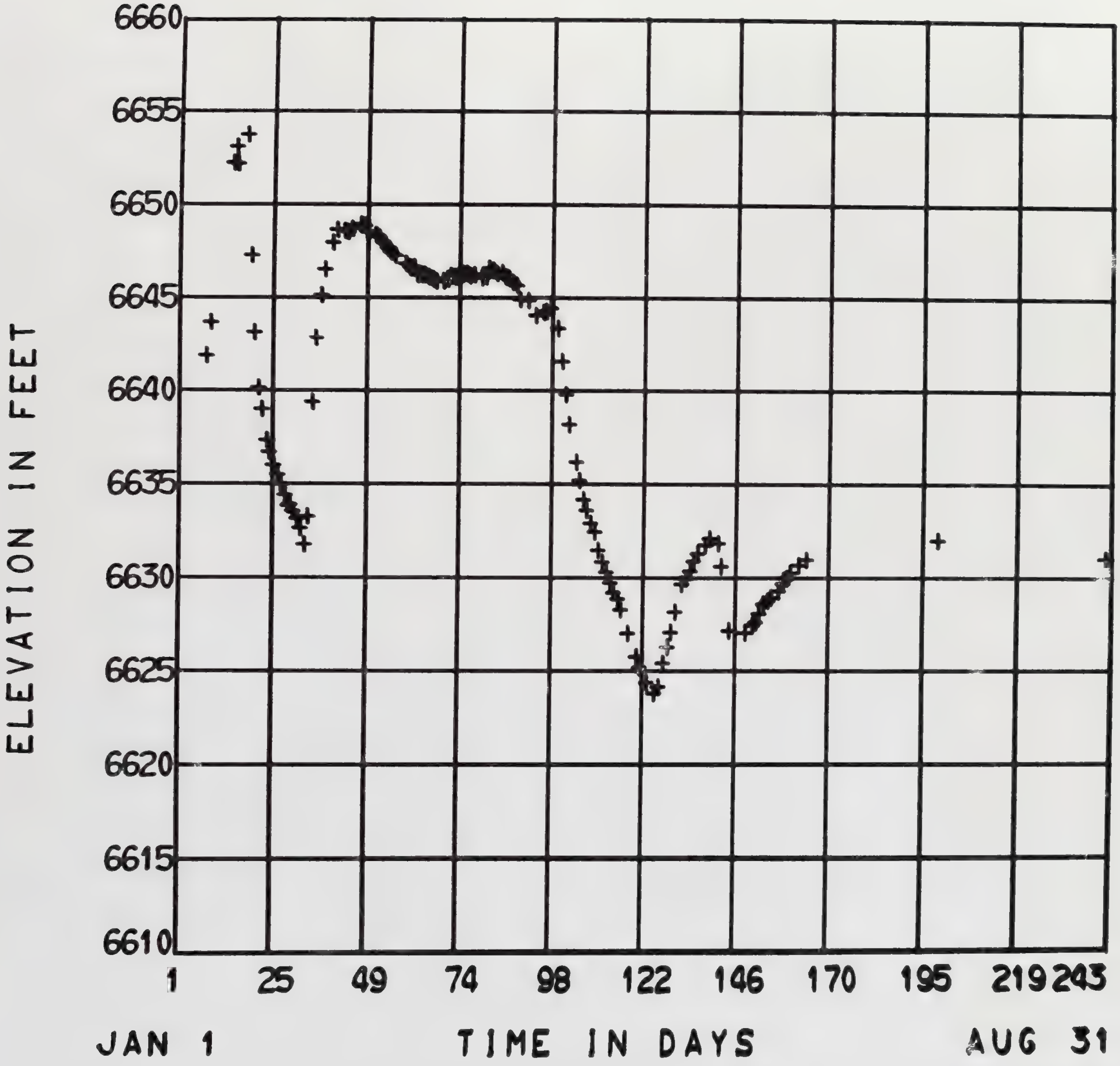

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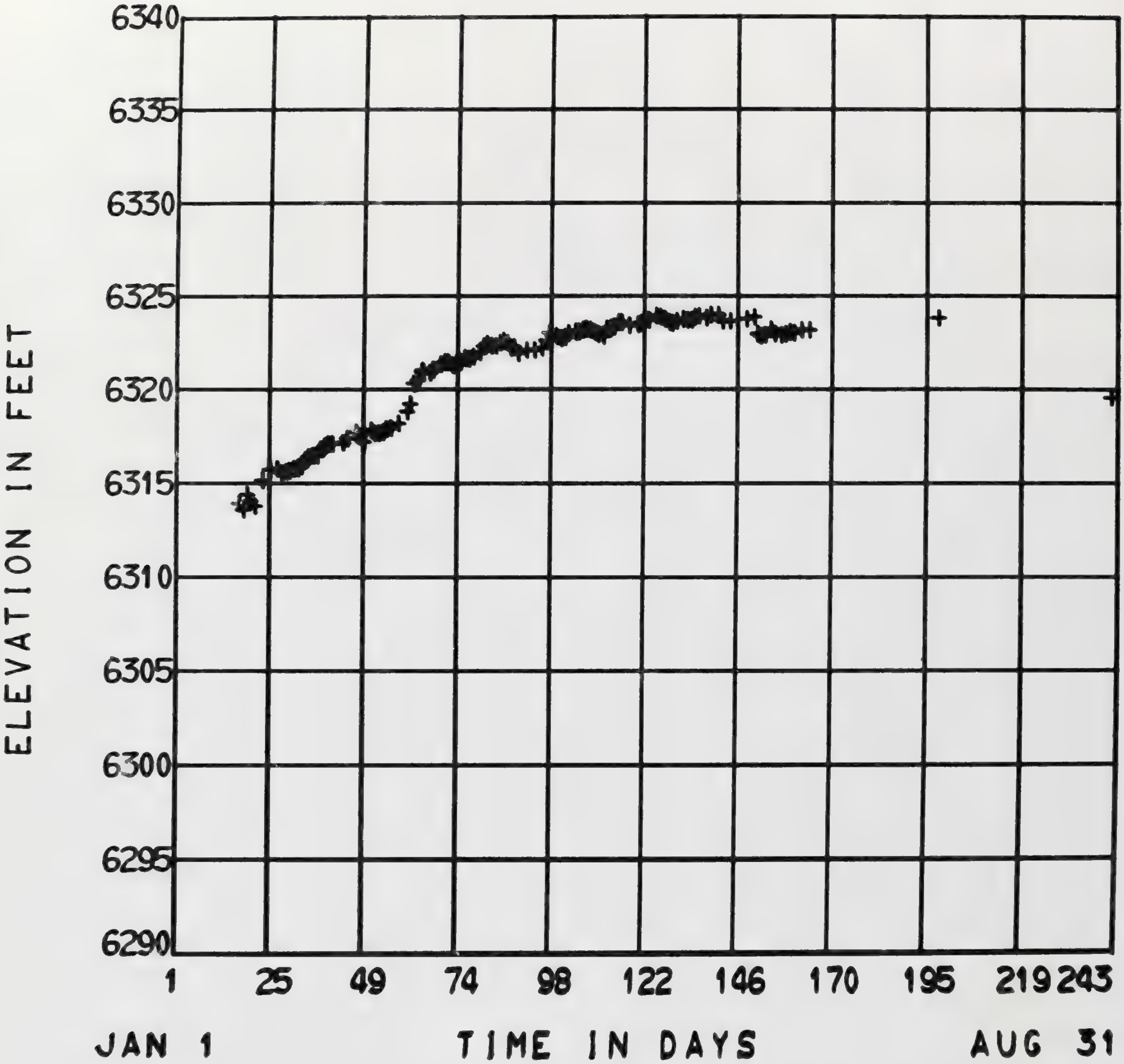

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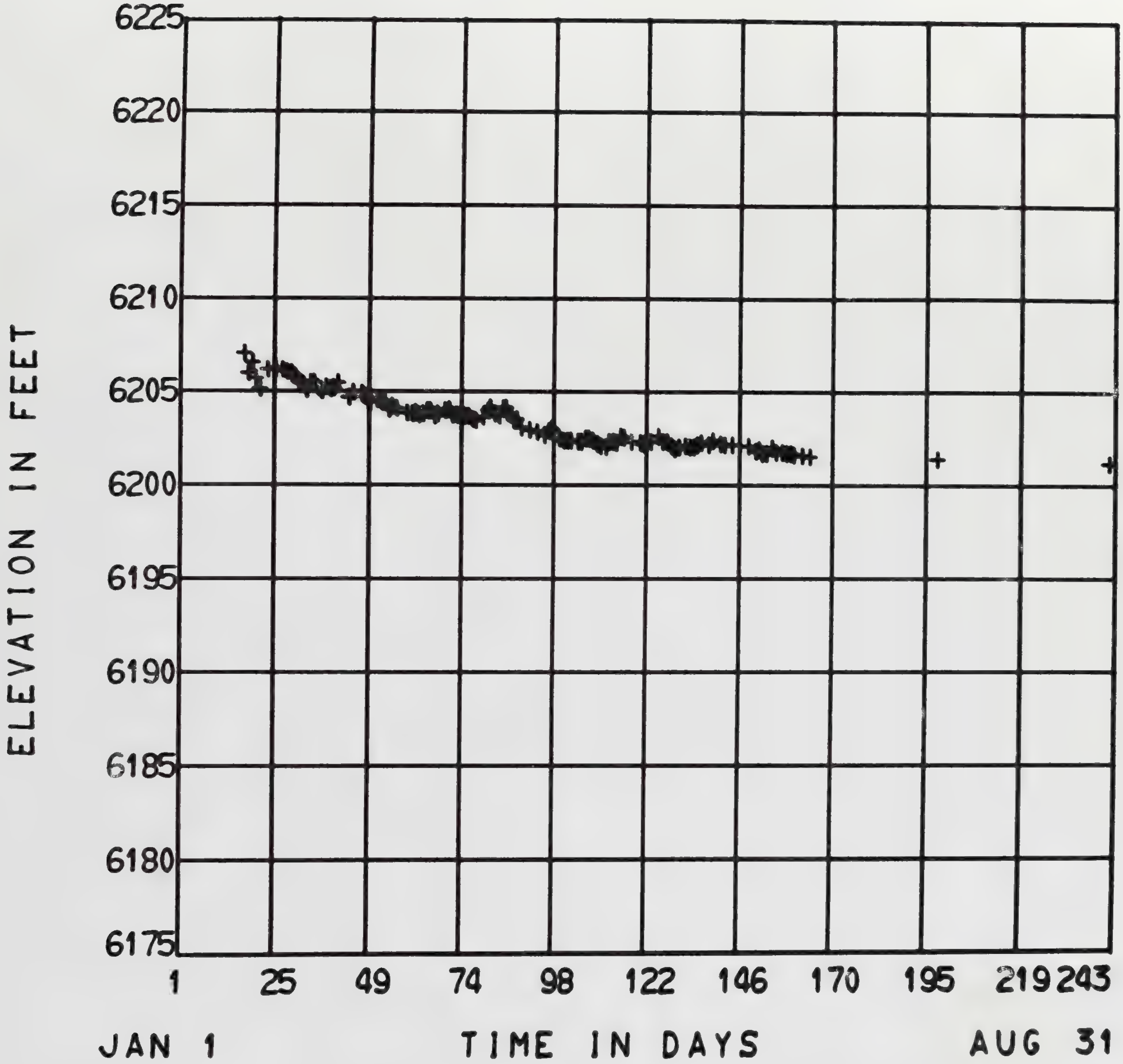

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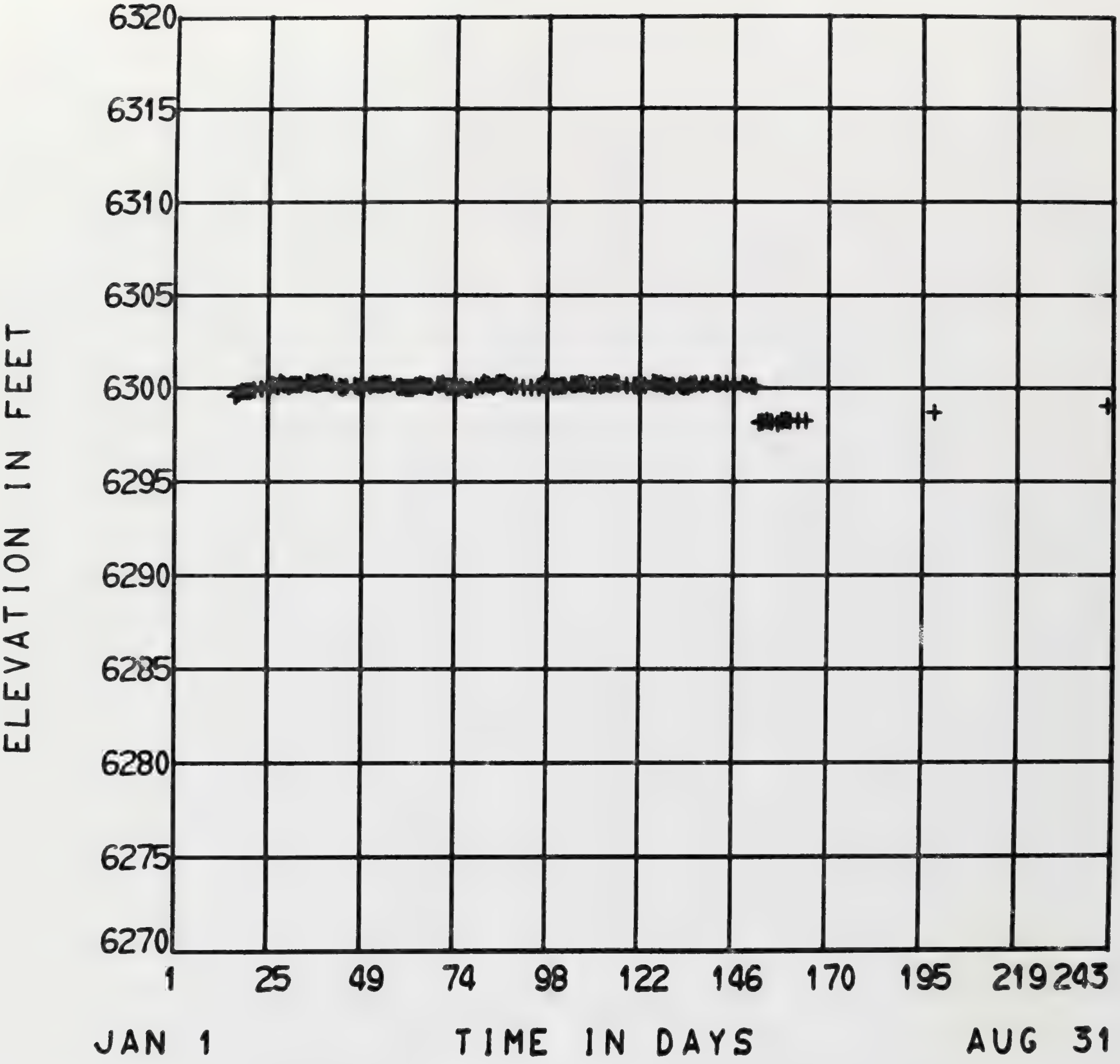

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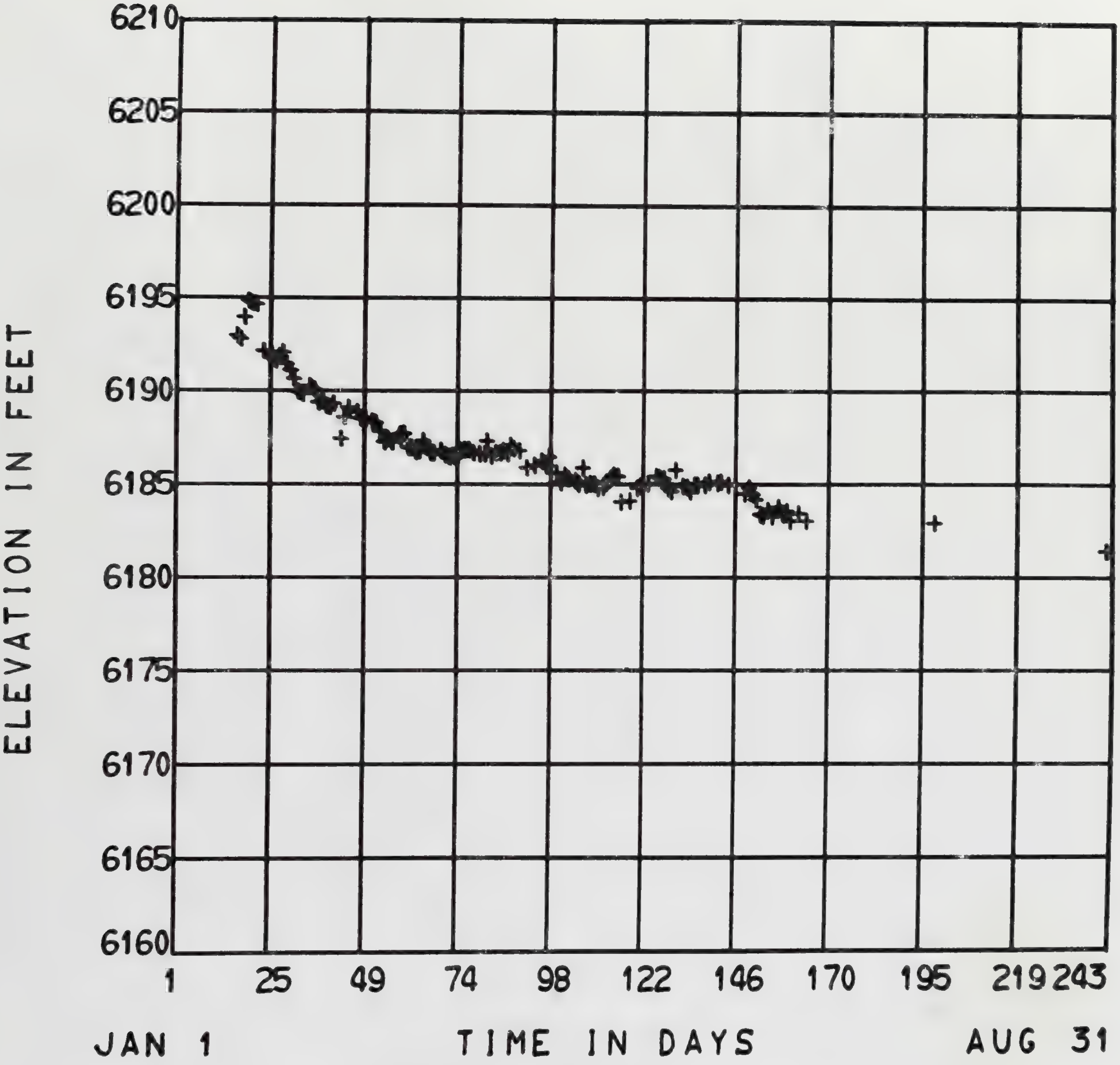

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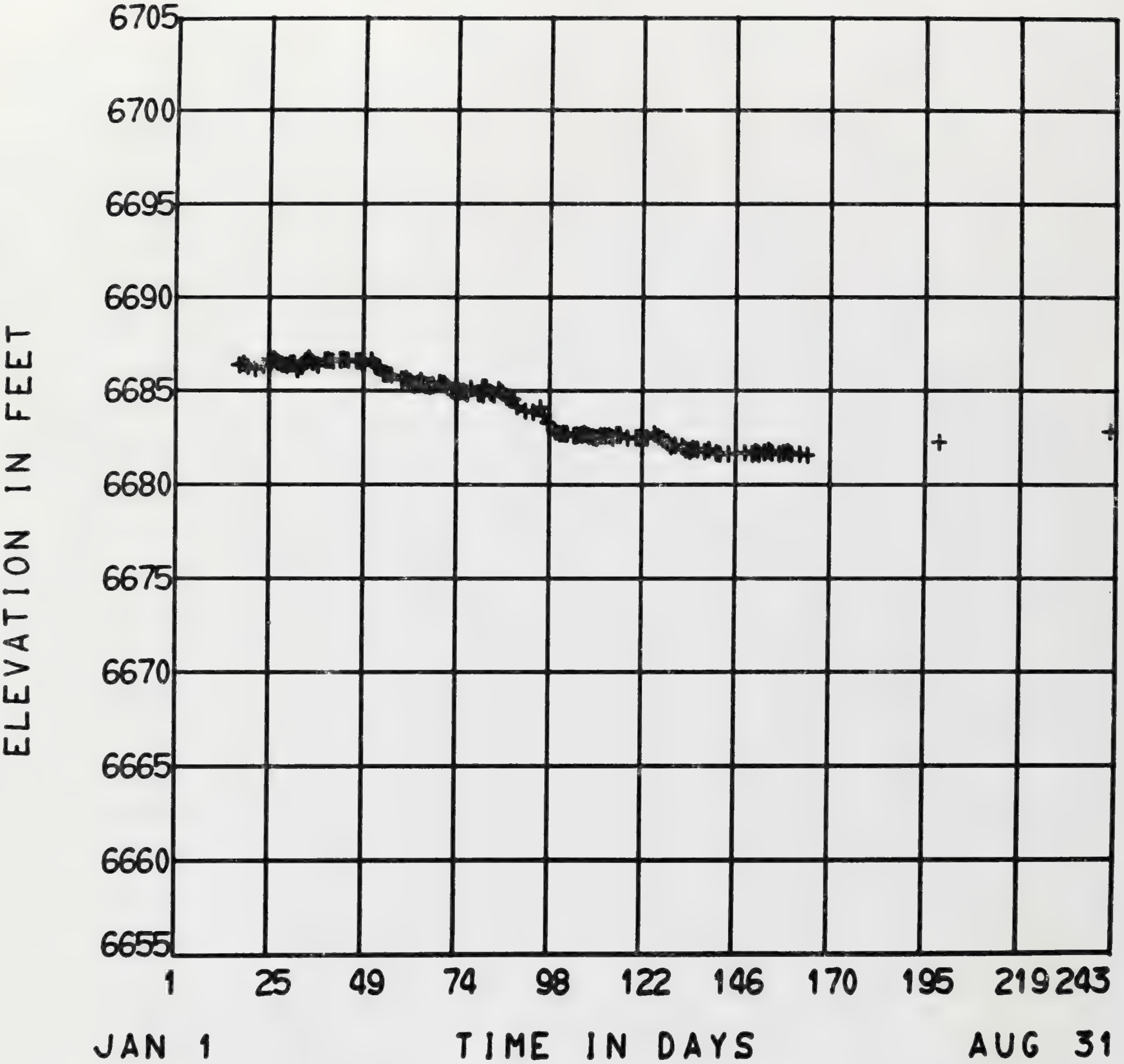

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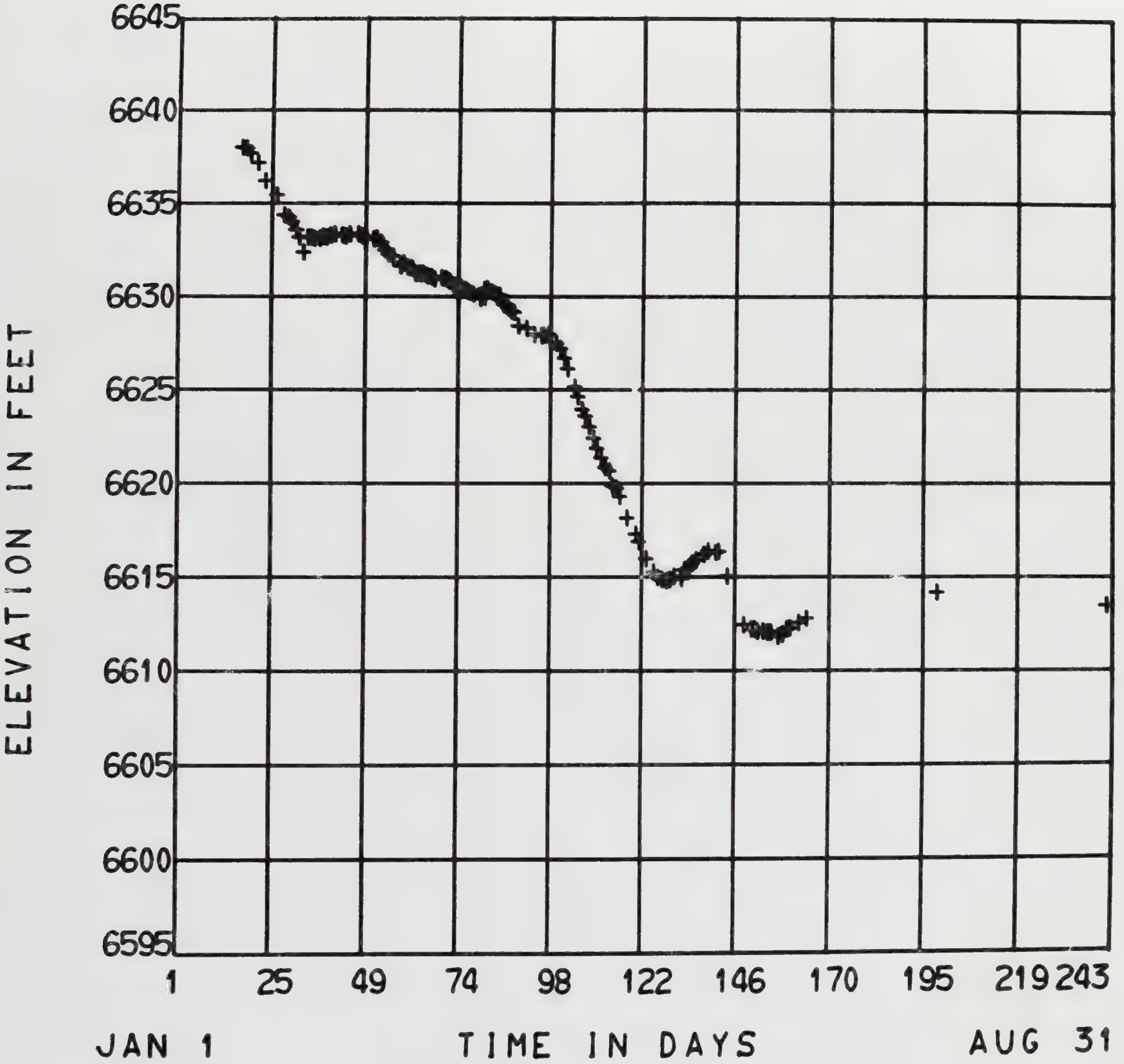

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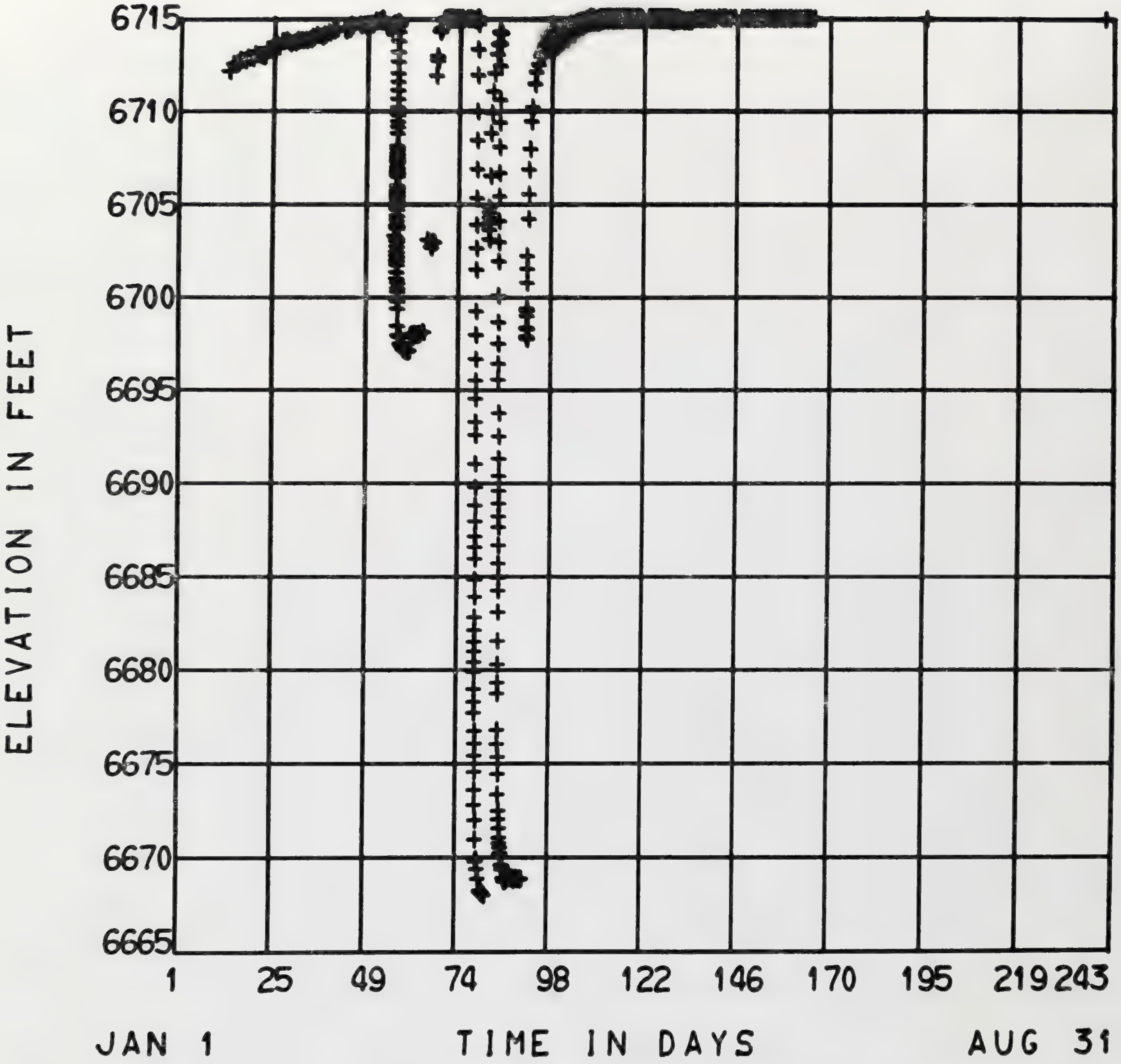

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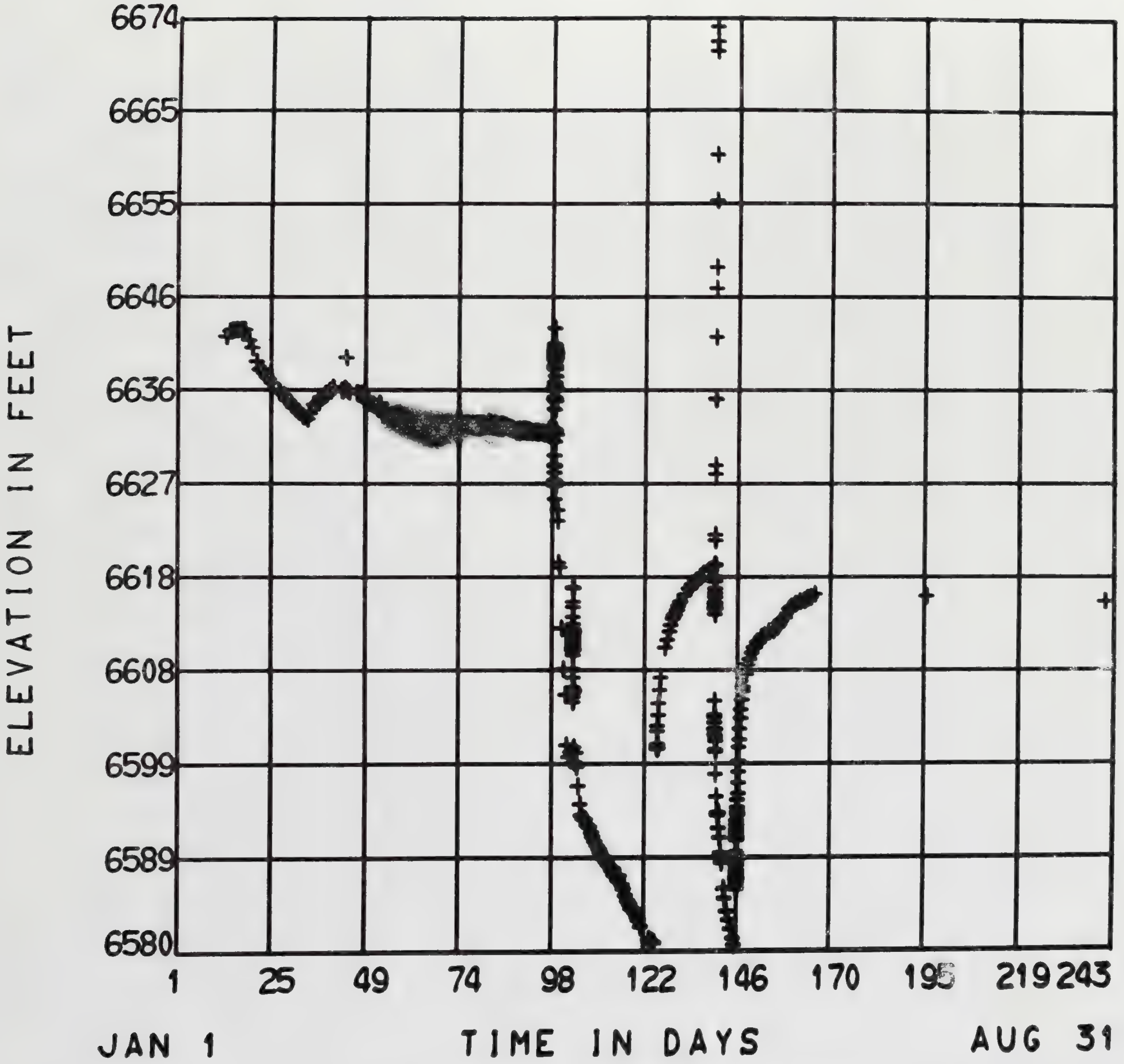

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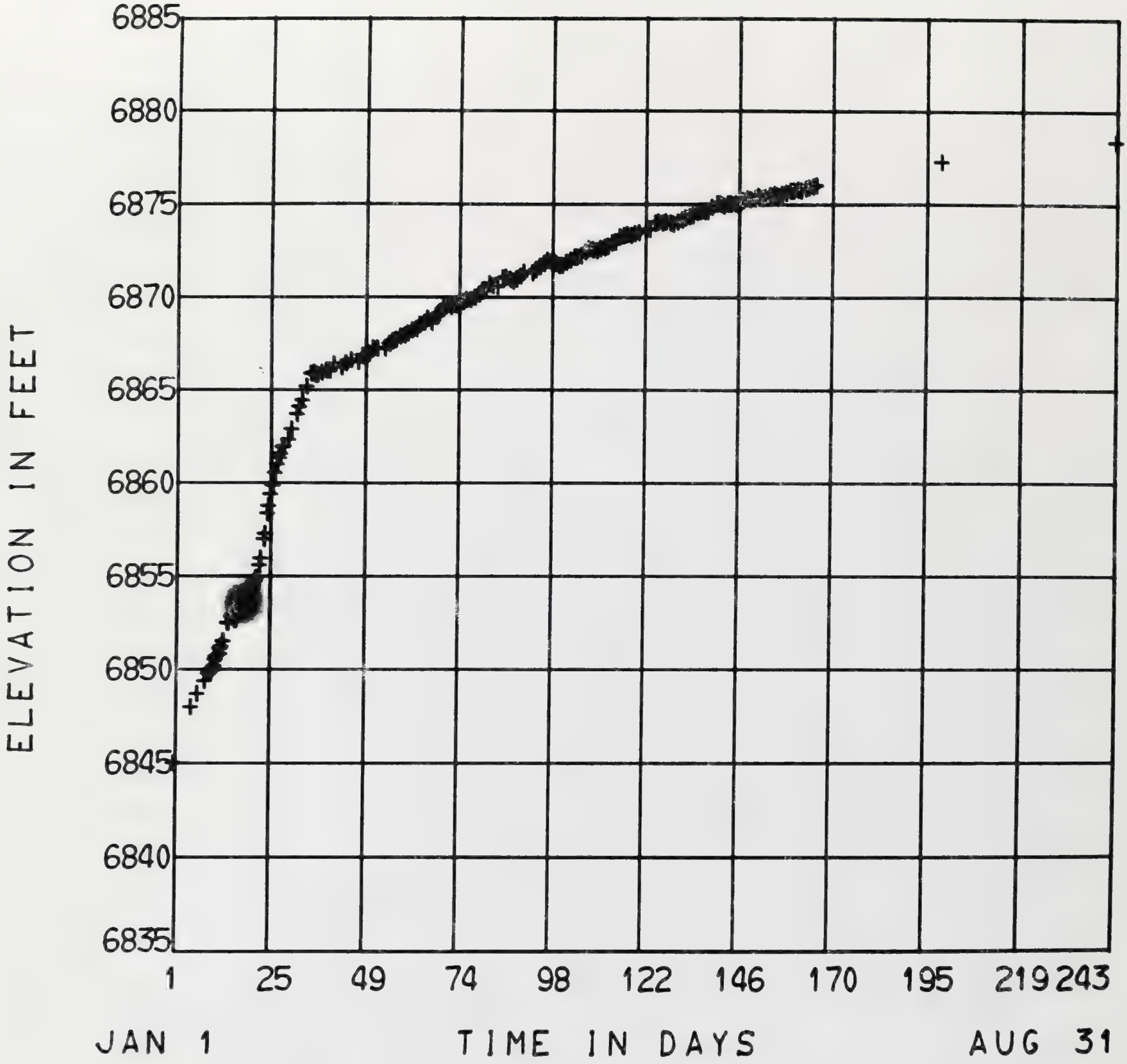

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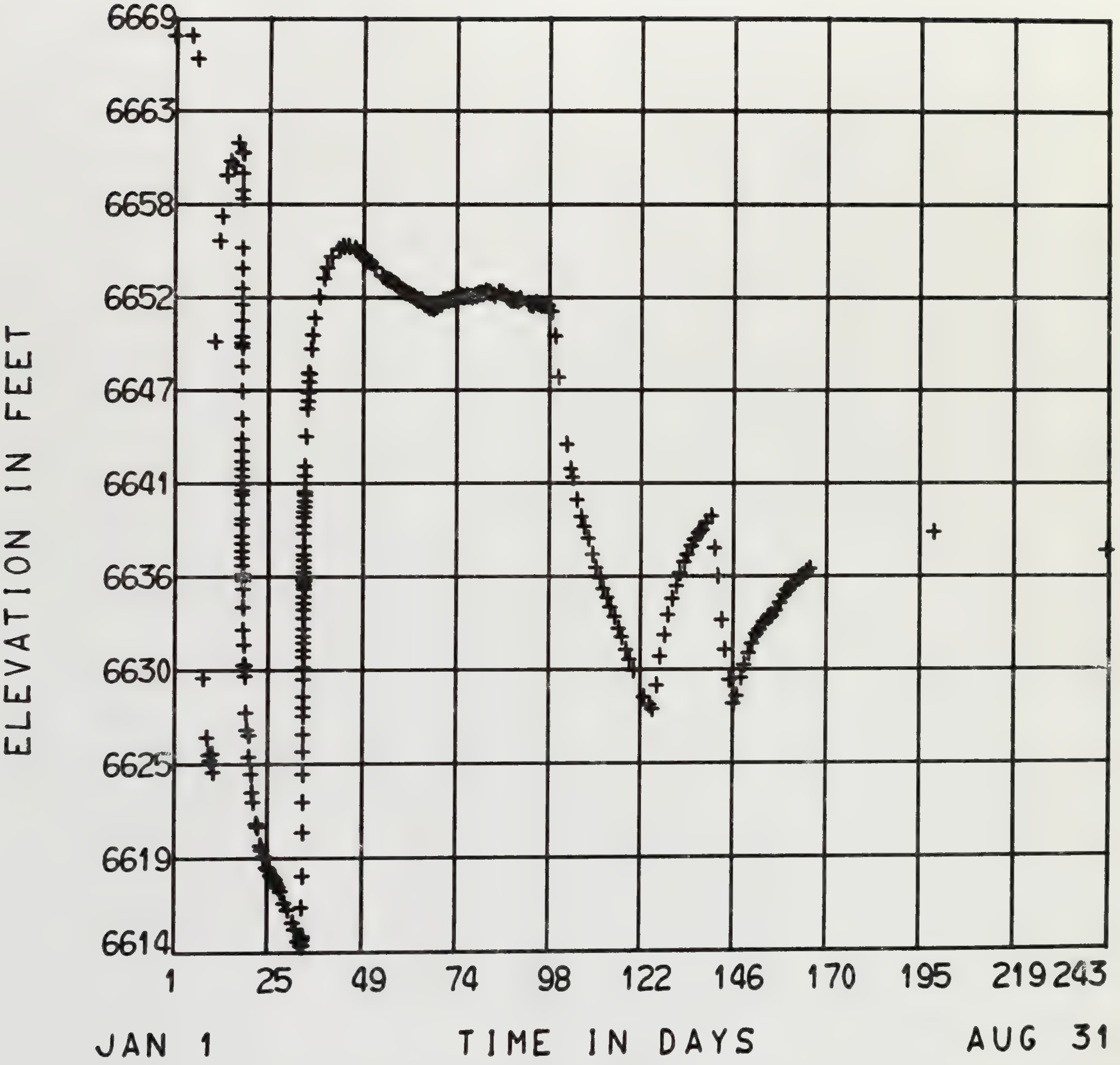

T0-2 HYDROGRAPH LOWR AQUIFER

RBOSP

APPENDIX 2

Second Shallow Groundwater Program, Eight Alluvial Test Holes

SUMMARY AND BASIC DATA

SECOND SHALLOW GROUNDWATER PROGRAM
EIGHT ALLUVIAL TEST WELLS
FEDERAL OIL SHALE TRACT C-a
RIO BLANCO COUNTY, COLORADO

for

RIO BLANCO OIL SHALE PROJECT
Gulf-Standard (Indiana)

RBOSP PROGRESS REPORT

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INTRODUCTION 1

HOLE LOCATIONS 1

DRILLING METHOD 3

WELL CONSTRUCTION 3

ALLUVIUM 4

TEST WELLS 4

AQUIFER TESTING 4

WATER QUALITY 7

CONCLUSIONS AND RECOMMENDATIONS 7

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- Figure 2. General Construction of Test Wells 5

TABLES

- Table 1. Summary of Field Parameters 6
- Table 2. Field Water Quality Parameters 8

APPENDICES

- Driller's Daily Report A
- Cuttings Description S-15 B
- Cuttings Description S-16 C
- Cuttings Description S-17 D
- Cuttings Description S-18 E
- Cuttings Description S-19 F
- Cuttings Description S-22 G
- Cuttings Description S-23 H
- Cuttings Description S-24 I
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SECOND SHALLOW GROUNDWATER PROGRAM
EIGHT ALLUVIAL TEST WELLS
FEDERAL OIL SHALE TRACT C-a
RIO BLANCO COUNTY, COLORADO

INTRODUCTION

The second shallow ground water program for the Rio Blanco Oil Shale project began on June 18, 1975. Eight alluvial water monitoring test holes were drilled to obtain subsurface hydrology and environmental baseline data around 84 Mesa in connection with oil shale Tract C-a, Rio Blanco County, Colorado.

Becker Drills, Inc., was engaged to drill the holes by Mr. Russell Darr of Wright Water Engineers, Inc. Drilling began on June 18, 1975, and was completed on June 25, 1975. Surface construction and preliminary measurements were completed in the following days. A daily report is included as Appendix A.

HOLE LOCATIONS

An index map showing the 8 alluvial monitoring wells is Figure 1. The locations of the 8 holes are listed in the order of drilling as follows:

S-24	NW1/4 NE1/4 SE1/4	Sec. 30, T.1S, R98W
S-22	NE1/4 SE1/4 NE1/4	Sec. 16, T.1S, R98W
S-23	NW1/4 SE1/4 NE1/4	Sec. 8, T.1S, R98W
S-19	SW1/4 SW1/4 NE1/4	Sec. 12, T.1S, R99W
S-16	SE1/4 NW1/4 SW1/4	Sec. 23, T.1S, R99W
S-15	NE1/4 NE1/4 SE1/4	Sec. 27, T.1S, R99W
S-18	SW1/4 SW1/4 SE1/4	Sec. 15, T.1S, R99W
S-17	NW1/4 SE1/4 SE1/4	Sec. 22, T.1S, R99W

The above locations are preliminary because they are yet to be surveyed.

Locations S-15 and S-24 were drilled as originally staked. Sites S-16, S-17, S-22 and S-23 were drilled as located by Mr. Darr personally in the field.

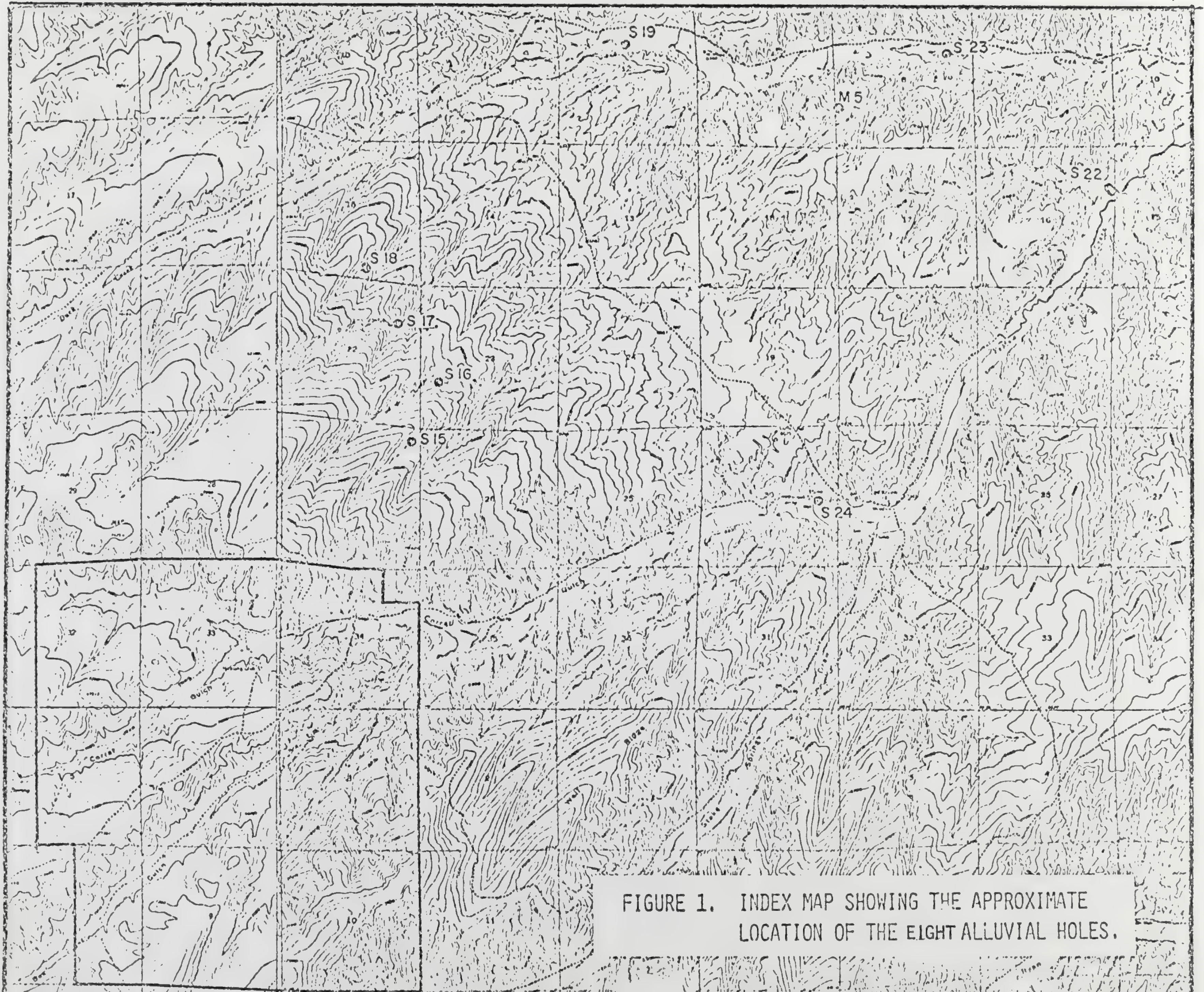
S 19
S 23
M 5
S 22
S 18
S 17
S 16
S 15
S 24

FIGURE 1. INDEX MAP SHOWING THE APPROXIMATE LOCATION OF THE EIGHT ALLUVIAL HOLES.

Well S-18 was located using both verbal instructions from Mr. Darr and from maps of the area because the original stake could not be found.

The wells are located on Yellow and Duck Creeks and their tributaries in and around the 84 Mesa.

Drilling Method

The Becker Hammer Method was employed using Becker 5-1/2" OD by 3-1/4 ID double-wall drive pipe and reverse air circulation. This method uses a diesel hammer to drive the drill-pipe into the ground, air is forced down the annulus of the double-walled drive pipe. The air lifts the cuttings up through the center of the drive pipe and discharges into a cyclone assembly. Samples can be obtained continuously from the base of the cyclone.

Personnel of the Becker drilling crew were:

Kenneth Long, Driller
Kermit L. Krueger

The advantage of using the Becker Hammer Method in any application is the recovery of clean, continuous geological samples free of up hole cuttings contamination that is common to conventional drilling methods.

The disadvantages of the Becker drill were described in the previous alluvial program report.

Well Construction

The drilling log of each of the 8 alluvial holes is included in the appendices in numerical order according to well number. Two-inch inside diameter (ID) plastic casing was installed in each hole. Once the casing was installed, the annulus was backfilled with washed gravel.

To protect the well, 5 feet of 7-inch outside diameter (OD) steel casing was cemented at the surface. Caps were made by welding a plate on 7-inch OD thread protectors. The sides of the protectors were split in two places to allow for a friction fit.

The general construction used for each test well is shown in Figure 2.

Alluvium

The alluvium in the Yellow and Duck creek drainages in the vicinity of the 84 Mesa consists of mostly very fine material derived from the Uinta Formation and Parachute Creek Member of the Green River Formation. The most well developed alluvium is in the mainstems of Yellow and Duck Creeks. The material in their tributaries consist mostly of slope wash and fan material.

Test Wells

The physical parameters of the test wells are summarized in Table 1. The table shows some difference between the measured depth and drilled depth. There differences have two causes. One is that some of the fine material stayed in the drill pipe until the casing was installed, the second reason is that in some cases a saturated clay was encountered which can move fluidly through the perforations.

Aquifer Testing

No aquifer tests were conducted during drilling. S-19, S-22, S-23, and S-24 were the only holes to show indications of water. Of these holes, S-23 produced a measured 60 gpm at 78 feet and was still developing, and S-24 produced an estimated 15 to 20 gpm from about 64 feet. The other holes produced little water during drilling.

FIGURE 2

GENERAL CONSTRUCTION OF TEST WELLS

NOT TO SCALE

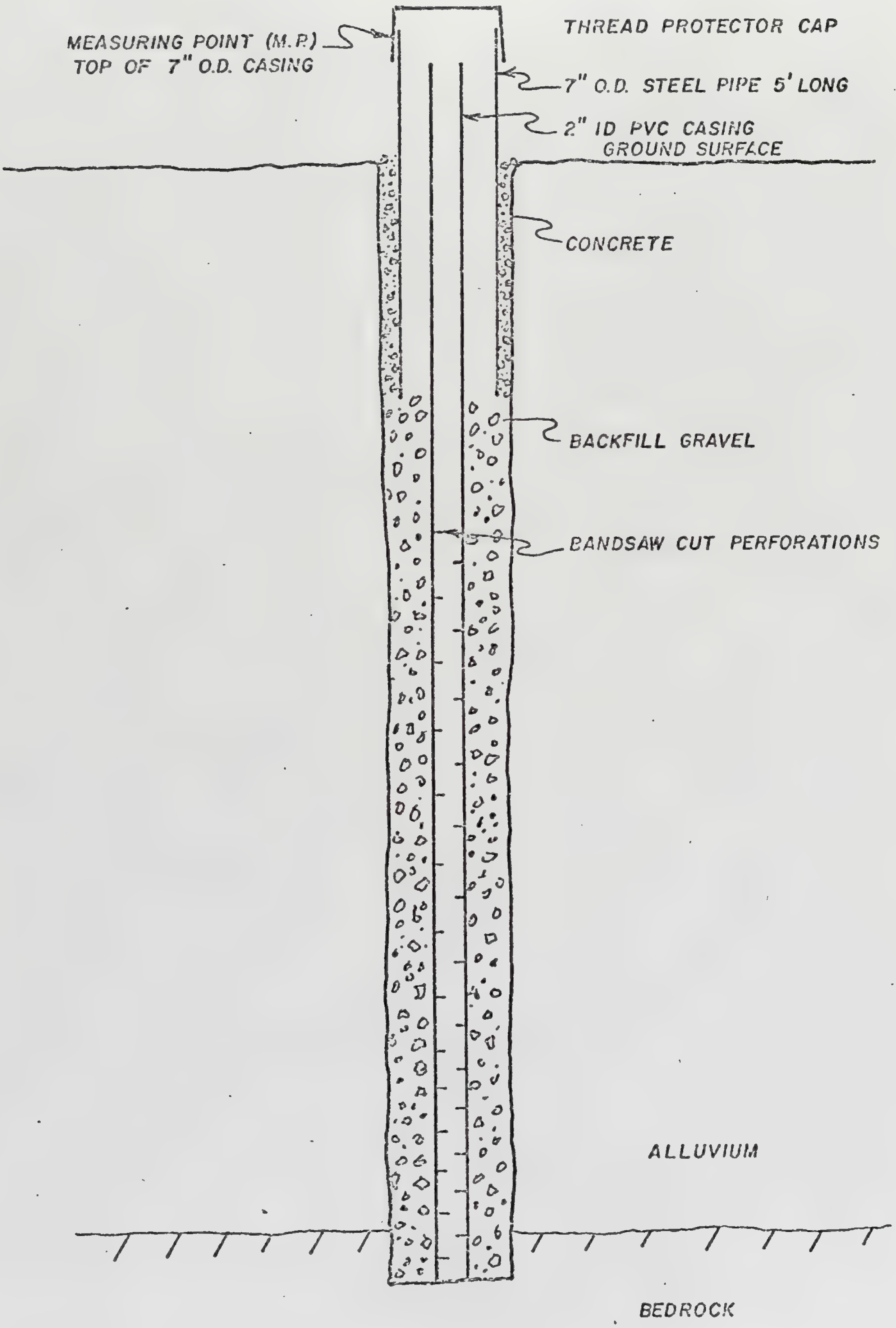
MEASURING POINT (M.P.)
TOP OF 7" O.D. CASING
THREAD PROTECTOR CAP
7" O.D. STEEL PIPE 5' LONG
2" ID PVC CASING
GROUND SURFACE
CONCRETE
BACKFILL GRAVEL
BANDSAW CUT PERFORATIONS
ALLUVIUM
BEDROCK

TABLE 1

Summary of physical measurements taken in the field. The test wells are listed by numerical well number rather than in chronological order of measurement.

Test Well	Drilled Depth (ft.)	Depth of Base of Alluvium (ft.)	Casing Record 2" ID PVC Non-perforated (ft.)	Casing Record 2" ID PVC Perforated (ft.)	Water Level Below MP (ft.)	MP From Ground Surface (ft.)	Depth Water From Ground Surface (ft.)	Measured Depth of Hole Ground Surface (ft.)	Date Measured	Time Measured, hrs
S-15	22	20	12	10	Dry	2.2	Dry	21.4	7/16/75	18:00
S-16	16	15	6	10	Dry	2.8	Dry	14.8	7/16/75	17:50
S-17	22	20	12	10	Dry	2.5	Dry	21.5	7/16/75	12:40
S-18	14	12	4	10	Dry	2.9	Dry	13.6	7/16/75	11:30
S-19	60	57	40	20	55.62	2.4	53.2	59.4	7/16/75	18:35
S-22	81	80	61	20	67.58	2.0	65.6	79.8	7/16/75	19:20
S-23	83.5	83	53	30	30.63	2.3	28.3	77.2	7/16/75	18:55
S-24	75	74	35	40	8.08	2.3	5.8	60.7	7/16/75	17:25

There is an inherent disadvantage in conducting an aquifer test with the Becker drill. Air is forced down the annulus of the double-walled drive pipe and out the bit, where the air lifts the cuttings and water up the center of the drive pipe. Consequently, when using the Becker drill for pumping, only a very small area of the aquifer at the bit is actually tested. Also, only an informal type of recovery test can be conducted because there is no room to measure water levels on the outside of the drive pipe.

An estimate of the Transmissivity of the alluvium could be obtained by conducting slug injection or other types of tests on the water bearing holes. For the slug injection test five to ten gallons of water could be bailed out of a hole, then after the water level stablized the water could be reinjected as a slug and the resultant recovery measured with time.

Before testing each well should be cleaned out and developed using a water jet. The water jet consists simply of a source of water, a pump and a garden hose or small diameter pipe that will fit down the well.

Water Quality

The holes containing water were first sampled on June 30, 1975. The samples were turned over to Wright Water Engineers to become an addition to the on-going water sampling and ground water monitoring program for the Rio Blanco Oil Shale Project. The field parameters measured at the time of sampling are listed below in Table 2.

Conclusions and Recommendations

Eight alluvial test wells were drilled and completed as instructed by Mr. Russ Darr, Wright Water Engineers, Inc., consultant to the Rio Blanco Oil Shale Project.

All of the alluvial wells should be cleaned out using water circulation.

If an estimate of transmissivities is desired, the slug injection method or the constant head-variable discharge injection method can probably be used.

TABLE 2

Field Water Quality Parameters Taken from The Wet Alluvial Holes on June 30, 1975.

Sample No.	Date	Time	Temp°C	Specific Conductance[1]	Spec Cond Compensated To 25°C	pH	SWL/GL* (ft.)
S-19	6/30/75	20:00	12.1	1400 @ 12.1°C	2000	6.8	52.0
S-22	6/30/75	18:20	11.3	1550 @ 12.0°C	2230	6.8	65.5
S-23	6/30/75	19:30	10.5	1500 @ 10.5°C	2275	7.0	28.5
S-24	6/30/75	17:30	11.4	1300 @ 11.4°C	1910	7.0	5.2

[1] Specific conductivity taken with an uncompensated Labline meter

*GL-Ground Level

APPENDIX A

DRILLERS DAILY DRILL REPORT

DRILLERS DAILY DRILL REPORT

becker

Client: RBOSP
Drilling Location: Rifle, Colorado
Date: June 18 1975
Becker Job No. 500

EQUIPMENT EMPLOYED:		SHIFT INFORMATION	
UNIT NO. 056	RENTALS AVIS	TIME SHIFT STARTED: 6:30	
UNIT NO: 222		TIME SHIFT ENDED: 5:30	
UNIT NO:		DAY SHIFT ☒	
UNIT NO:		NIGHT SHIFT ☐	

PERSONNEL EMPLOYED	EMPLOYEES NAMES	TOTAL HOURS
DRILLER	K. Long	11
HELPER	K. Krueger	11
HELPER		
HELPER		

DRILLING INFORMATION & CLIENT CHARGES

		TODAY'S DRILLING RECORD														
Hole No.	Previous Day's Total Footage	Ft. of ~~Casing~~ PVC Set	Ft. of Overburden Drilled	Ft. of Hardrock Tri-Coned	Ft. of Hardrock Cored	Shelby's Taken Qty.	Shelby's Taken Ft.	Split Spoon's Taken Qty.	Split Spoon's Taken Ft.	Pressure Tests Taken Qty.	Pressure Tests Taken Ft.	Total of All Footage Drilled	Total Footage Drilled This Hole	Total Footage Chargeable Today	REMARKS
S-24		SLOTTED 40' BLANK 35'	75'									75'	75'	75'	
Total Chargeable			75'											75'	

DISTRIBUTION OF DAILY HOURS

	HOURS WORKED	HOURS CHARGEABLE
TRAVEL HOURS	1	1½
DRILL HOURS		4½
STANDBY HOURS		
MOVING BETWEEN HOLES (HRS)		
MAINTENANCE HOURS	2	
OTHER HOURS (DESCRIBE)	2	
TOTAL HOURS	5	6

DISTRIBUTION OF DRILLING SUPPLIES CONSUMED

CHECK OFF NON-CHARGEABLE ITEMS (NC)

NC	QTY	SIZE	DESCRIPTION	NC	QTY	SIZE	DESCRIPTION

CLIENTS REMARKS:

CLIENTS APPROVAL OF CHARGES: X Ernest W. Bond

ALL APPLICABLE HOURS, FOOTAGE & SUPPLIES CONSUMED ARE CHARGEABLE AS SHOWN UNLESS OTHERWISE NOTED ABOVE.

MOBILIZATION & DEMOBILIZATION

From To

Total miles driven this date:

Total miles driven entire trip:

BECKER APPROVAL. Kenneth C. Long

GENERAL REMARKS—EXPLANATION OF MAINT. & OTHER HRS.

DROVE TO RIO BLANCO & MET WITH CLIENT. DROVE APPROX 142 MORE MILES TO DRILL LOCATION. LOCATED DRILL HOLE & MOVED ONTO SITE. SET UP RIG, (CYCLONE HOSE, EXTRA PIPE, ETC) STARTED DRILLING. BECKER CREW [illegible] ASISTED CLIENT IN BAGGING SAMPLES. DROVE TO 75'. HIT SANDSTONE. BOTTOMED HOLE. INSTALLED 75' OF 2" PIPE MOVED OFF OF SITE GOT 250 GAL. OF FUEL IN SERVICE TRUCK.

BDI-31 (REV. 1-75) CLIENT'S COPY

RBOSP, PROC

becker

DRILLERS DAILY DRILL REPORT

Client: R.B.O.S.P.
Drilling Location: Rifle, Colo.
Date: June 19 1975
Becker Job No. 655

EQUIPMENT EMPLOYED:		SHIFT INFORMATION	PERSONNEL EMPLOYED	
			EMPLOYEES NAMES	TOTAL HOURS
UNIT NO. 056	RENTALS - AVIS	TIME SHIFT STARTED: 7:00	DRILLER Ken Long	10
UNIT NO: 222		TIME SHIFT ENDED: 5:30	HELPER K. Krueger	10
UNIT NO:		DAY SHIFT ☒	HELPER	
UNIT NO:		NIGHT SHIFT ☐	HELPER	

DRILLING INFORMATION & CLIENT CHARGES

Hole No.	Previous Day's Total Footage	TODAY'S DRILLING RECORD											Total Footage Drilled This Hole	Total Footage Chargeable Today	REMARKS
		Ft. of 2" ~~Casing~~ Set PVC	Ft. of Overburden Drilled	Ft. of Hardrock Tri-Coned	Ft. of Hardrock Cored	Shelby's Taken Qty.	Shelby's Taken Ft.	Split Spoon's Taken Qty.	Split Spoon's Taken Ft.	Pressure Tests Taken Qty.	Pressure Tests Taken Ft.	Total of All Footage Drilled			
S-22		81'										81'	81'	81'	S-22 ON BOTT
Total Chargeable		81'												81'	

DISTRIBUTION OF DAILY HOURS

	HOURS WORKED	HOURS CHARGEABLE
TRAVEL HOURS	1	1½
DRILL HOURS		4½
STANDBY HOURS		1
MOVING BETWEEN HOLES (HRS)		
MAINTENANCE HOURS	1½	
OTHER HOURS (DESCRIBE)	1	
TOTAL HOURS	3½	7

DISTRIBUTION OF DRILLING SUPPLIES CONSUMED
CHECK OFF NON-CHARGEABLE ITEMS (NC)

NC	QTY	SIZE	DESCRIPTION	NC	QTY	SIZE	DESCRIPTION

MOBILIZATION & DEMOBILIZATION

From ______ To ______

Total miles driven this date:

Total miles driven entire trip:

CLIENTS REMARKS:

CLIENTS APPROVAL OF CHARGES: X Ernest W. Bond

ALL APPLICABLE HOURS, FOOTAGE & SUPPLIES CONSUMED ARE CHARGEABLE AS SHOWN UNLESS OTHERWISE NOTED ABOVE.

BECKER APPROVAL. Kenneth C Jung

GENERAL REMARKS–EXPLANATION OF MAINT. & OTHER HRS.

DROVE TO DRILLING LOCATION. MOVED DRILL ONTO SITE #S-22. SET UP, DRILLED TO 91' BOTTOMED HOLE SET 2" PVC PULLED OUT. LOOKED AT DRILL SITES WITH CLIENT. MOVED TO NEXT SITE. SET UP. DRILLED TO 81. BOTTOMED HOLE. WAITED FOR CLIENT FOR DECISION ON PIEZO DEPTH. GREASED HAMMER & DRIVE LINE. FUELED RIG. WILL SET PIEZO 6/19.

BDI-31 (REV. 1-75)

CLIENT'S COPY

RBOSP TECHNICAL REPORT

becker

DRILLERS DAILY DRILL REPORT

Client: RBOSP (GULF-STANDARD) Date: June 20 1975
Drilling Location: Rifle, Colo Becker Job No. 655

EQUIPMENT EMPLOYED:		SHIFT INFORMATION	
UNIT NO. 056	RENTALS AVIS	TIME SHIFT STARTED: 6:30	
UNIT NO: 222		TIME SHIFT ENDED:	
UNIT NO:		DAY SHIFT ☒	
UNIT NO:		NIGHT SHIFT ☐	

PERSONNEL EMPLOYED	EMPLOYEES NAMES	TOTAL HOURS
DRILLER	Ken Long	10
HELPER	K. Krueger	10
HELPER		
HELPER		

DRILLING INFORMATION & CLIENT CHARGES

Hole No.	Previous Day's Total Footage	Ft. of Casing Set PVC	Ft. of Overburden Drilled	Ft. of Hardrock Tri-Coned	Ft. of Hardrock Cored	Shelby's Taken Qty.	Shelby's Taken Ft.	Split Spoon's Taken Qty.	Split Spoon's Taken Ft.	Pressure Tests Taken Qty.	Pressure Tests Taken Ft.	Total of All Footage Drilled	Total Footage Drilled This Hole	Total Footage Chargeable Today	REMARKS
S-23		SLITTED 20' BLANK 61'											81'		
~~[illegible]~~		~~83'~~													
S-23		SLITTED 30' BLANK	83'									83'	83'	83'	
Total Chargeable			83'											83'	

DISTRIBUTION OF DAILY HOURS	HOURS WORKED	HOURS CHARGEABLE
TRAVEL HOURS	1	1½
DRILL HOURS		2
STANDBY HOURS		
MOVING BETWEEN HOLES (HRS)	1	
MAINTENANCE HOURS	3	
OTHER HOURS (DESCRIBE)	1½	
TOTAL HOURS	6½	3½

DISTRIBUTION OF DRILLING SUPPLIES CONSUMED
CHECK OFF NON-CHARGEABLE ITEMS (NC)

NC	QTY	SIZE	DESCRIPTION	NC	QTY	SIZE	DESCRIPTION

CLIENTS REMARKS:

CLIENTS APPROVAL OF CHARGES: X Ernest W. Bond
ALL APPLICABLE HOURS, FOOTAGE & SUPPLIES CONSUMED ARE CHARGEABLE AS SHOWN UNLESS OTHERWISE NOTED ABOVE.

MOBILIZATION & DEMOBILIZATION

From ______ To ______

Total miles driven this date: ______

Total miles driven entire trip: ______

BECKER APPROVAL. Kenneth C Long

GENERAL REMARKS–EXPLANATION OF MAINT. & OTHER HRS.

FINISHED SETTING PIEZO ON SITE #S-22 MOVED TO S-23 SET UP. DRILLED TO 83.' BOTTOMED HOLE, SET PIEZO ON BOTTOM. PULLED D.W.P. + MOVED TO NEXT SITE. I BROKE THE LEFT SIDE FUEL LINE WHICH IN TURN BROKE THE RIGHT ONE, (ON 056) WE LOOKED FOR PARTS ON OUR BUT WAS UNABLE TO FIND A FARREL FITTING. WILL HAVE TO GET ONE IN RIFLE LOOKED AT DRILL SITES WITH CLIENT, AND DECIDED WE WOULD NEED A CAT.

BDI-31 (REV. 1-75) CLIENT'S COPY

becker

DRILLERS DAILY DRILL REPORT

Client: R.B.O.S.P. (GULF - STANDARD)
Date: June 21 1975
Drilling Location:
Becker Job No. 655

EQUIPMENT EMPLOYED:		SHIFT INFORMATION	PERSONNEL EMPLOYED	
			EMPLOYEES NAMES	TOTAL HOURS
UNIT NO. 056	RENTALS AVIS	TIME SHIFT STARTED: 8:00	DRILLER Ken Long	
UNIT NO: 222		TIME SHIFT ENDED:	HELPER R. Krueger	
UNIT NO:		DAY SHIFT ☒	HELPER	
UNIT NO:		NIGHT SHIFT ☐	HELPER	

DRILLING INFORMATION & CLIENT CHARGES

Hole No.	Previous Day's Total Footage	TODAY'S DRILLING RECORD Ft. of Casing Set PVC	Ft. of Overburden Drilled	Ft. of Hardrock Tri-Coned	Ft. of Hardrock Cored	Shelby's Taken Qty.	Shelby's Taken Ft.	Split Spoon's Taken Qty.	Split Spoon's Taken Ft.	Pressure Tests Taken Qty.	Pressure Tests Taken Ft.	Total of All Footage Drilled	Total Footage Drilled This Hole	Total Footage Chargeable Today	REMARKS
5-19		SLOTTED 30' BLANK 30'	60'									60'	60'	60'	
5-16				SET UP ON LOCATION											
Total Chargeable			60'											60'	

DISTRIBUTION OF DAILY HOURS

	HOURS WORKED	HOURS CHARGEABLE
TRAVEL HOURS	1	2
DRILL HOURS		1½
STANDBY HOURS		
MOVING BETWEEN HOLES (HRS)	1½	
MAINTENANCE HOURS	1½	
OTHER HOURS (DESCRIBE)	2	
TOTAL HOURS	6	3½

DISTRIBUTION OF DRILLING SUPPLIES CONSUMED
CHECK OFF NON-CHARGEABLE ITEMS (NC)

NC	QTY	SIZE	DESCRIPTION	NC	QTY	SIZE	DESCRIPTION
	10		SAMPLE BAGS				

MOBILIZATION & DEMOBILIZATION

From To

Total miles driven this date:

Total miles driven entire trip:

CLIENTS REMARKS:

CLIENTS APPROVAL OF CHARGES: X Ernest W. Bird

ALL APPLICABLE HOURS, FOOTAGE & SUPPLIES CONSUMED ARE CHARGEABLE AS SHOWN UNLESS OTHERWISE NOTED ABOVE.

BECKER APPROVAL. Kenneth C. Long

GENERAL REMARKS—EXPLANATION OF MAINT. & OTHER HRS.

REPAIRED BROKEN FUEL LINES AFTER GETTING PARTS AT FORD. SET UP ON SITE # S-19. DROVE TO 60' BOTTOMED HOLE. SET PIEZO MOVED OFF LOCATION. DROVE TO SITE # S-16. SET UP. WILL DRILL [illegible] DROVE BACK TO RIFLE.

BDI-31 (REV. 1-75) CLIENT'S COPY

RBOSP PROGRESS REPORT

becker

DRILLERS DAILY DRILL REPORT

Client: R.B.O.S.P. (GULF + STANDARD)
Date: June 23 1975
Drilling Location: Rifle, Colo.
Becker Job No. 655

EQUIPMENT EMPLOYED:		SHIFT INFORMATION	
UNIT NO. 056	RENTALS AULS	TIME SHIFT STARTED:	6:30
UNIT NO: 222		TIME SHIFT ENDED:	5:00
UNIT NO:		DAY SHIFT	☒
UNIT NO:		NIGHT SHIFT	☐

PERSONNEL EMPLOYED	EMPLOYEES NAMES	TOTA HOUR
DRILLER	Ken Long	11
HELPER	K. Krueger	11
HELPER		
HELPER		

DRILLING INFORMATION & CLIENT CHARGES

Hole No.	Previous Day's Total Footage	TODAY'S DRILLING RECORD Ft. of Casing Set	Ft. of Overburden Drilled	Ft. of Hardrock Tri-Coned	Ft. of Hardrock Cored	Shelby's Taken Qty.	Shelby's Taken Ft.	Split Spoon's Taken Qty.	Split Spoon's Taken Ft.	Pressure Tests Taken Qty.	Pressure Tests Taken Ft.	Total of All Footage Drilled	Total Footage Drilled This Hole	Total Footage Chargeable Today	REMARKS
S-16			15'									15'	[illegible]	15'	
S-15			22'										22'	22'	
Total Chargeable			37'											37'	

DISTRIBUTION OF DAILY HOURS

	HOURS WORKED	HOURS CHARGEABLE
TRAVEL HOURS	1	2
DRILL HOURS		1½
STANDBY HOURS		5½
MOVING BETWEEN HOLES (HRS)		
MAINTENANCE HOURS	1	
OTHER HOURS (DESCRIBE)		
TOTAL HOURS	2	9

DISTRIBUTION OF DRILLING SUPPLIES CONSUMED

CHECK OFF NON-CHARGEABLE ITEMS (NC)

NC	QTY	SIZE	DESCRIPTION	NC	QTY	SIZE	DESCRIPTION

MOBILIZATION & DEMOBILIZATION

From ______ To ______

Total miles driven this date: ______

Total miles driven entire trip: ______

CLIENTS REMARKS:

CLIENTS APPROVAL OF CHARGES: X Ernest W. Bo

ALL APPLICABLE HOURS, FOOTAGE & SUPPLIES CONSUMED ARE CHARGEABLE AS SHOWN UNLESS OTHERWISE NOTED ABOVE.

BECKER APPROVAL. Kenneth C. Long

GENERAL REMARKS–EXPLANATION OF MAINT. & OTHER HRS.

DROVE TO DRILL LOCATION. DRILLED TO 15' BOTTOMED HOLE ON B-ROCK, SET PIEZO AT 15'. LOOKED FOR SITE #S-15, DROVE RIG ONTO SITE. SET UP. DRILLED TO 22' CLIENT BOTTOMED HOLE, SET PIEZO ON BOTTOM. PULLED DRI SET DOWN. SPENT THE REST OF DAY LOOKING FOR SITES # S-18 – S-17. FOUND. WILL MOVE ONTO SITES TOMORROW. REPAIRED FUEL LINES ON 056 AGAIN. DROVE BACK TO RIFLE

BDI-31 (REV. 1-75) ...S COPY

RBOSP PROGRESS REPORT

becker

DRILLERS DAILY DRILL REPORT

Client: R.B.O.S.P. (GULF & STANDARD)
Date: June 24 1975
Drilling Location: Rifle, Colo.
Becker Job No. 655

EQUIPMENT EMPLOYED:	
UNIT NO. 056	RENTALS AWS
UNIT NO: 222	
UNIT NO:	
UNIT NO:	

SHIFT INFORMATION

TIME SHIFT STARTED:
TIME SHIFT ENDED:
DAY SHIFT ☒
NIGHT SHIFT ☐

PERSONNEL EMPLOYED

	EMPLOYEES NAMES	TOTAL HOURS
DRILLER	Ken Jong	11
HELPER	K. Kanegar	11
HELPER		
HELPER		

DRILLING INFORMATION & CLIENT CHARGES

Hole No.	Previous Day's Total Footage	TODAY'S DRILLING RECORD: Ft. of Casing Set	Ft. of Overburden Drilled	Ft. of Hardrock Tri-Coned	Ft. of Hardrock Cored	Shelby's Taken Qty.	Shelby's Taken Ft.	Split Spoon's Taken Qty.	Split Spoon's Taken Ft.	Pressure Tests Taken Qty.	Pressure Tests Taken Ft.	Total of All Footage Drilled	Total Footage Drilled This Hole	Total Footage Chargeable Today	REMARKS
Total Chargeable															

DISTRIBUTION OF DAILY HOURS

	HOURS WORKED	HOURS CHARGEABLE
TRAVEL HOURS	1	2
DRILL HOURS		
STANDBY HOURS		8
MOVING BETWEEN HOLES (HRS)		
MAINTENANCE HOURS		
OTHER HOURS (DESCRIBE)		
TOTAL HOURS	1	10

DISTRIBUTION OF DRILLING SUPPLIES CONSUMED

CHECK OFF NON-CHARGEABLE ITEMS (NC)

NC	QTY	SIZE	DESCRIPTION	NC	QTY	SIZE	DESCRIPTION

CLIENTS REMARKS:

CLIENTS APPROVAL OF CHARGES: X Ernest W. Bond

ALL APPLICABLE HOURS, FOOTAGE & SUPPLIES CONSUMED ARE CHARGEABLE AS SHOWN UNLESS OTHERWISE NOTED ABOVE.

MOBILIZATION & DEMOBILIZATION

From To

Total miles driven this date:

Total miles driven entire trip:

BECKER APPROVAL. Kenneth C. Jong

GENERAL REMARKS–EXPLANATION OF MAINT. & OTHER HRS.

ASSISTED CLIENT WITH LOCATING DRILL SITES & LOCATING ACCESS.

BDI-31 (REV. 1-75)

CLIENT'S COPY

becker

DRILLERS DAILY DRILL REPORT

Client: R.B.O.S.P (GULF & STANDARD) INDIANA
Date: June 25 1975
Drilling Location: Rifle, Colo.
Becker Job No. 655

EQUIPMENT EMPLOYED:	
UNIT NO. 056	RENTALS AWS
UNIT NO: 222	
UNIT NO:	
UNIT NO:	

SHIFT INFORMATION

TIME SHIFT STARTED: 6:30
TIME SHIFT ENDED: 5:00
DAY SHIFT ☒
NIGHT SHIFT ☐

PERSONNEL EMPLOYED

	EMPLOYEES NAMES	TOTAL HOURS
DRILLER	Ken Jong	10½
HELPER	K. Krueger	10½
HELPER		
HELPER		

DRILLING INFORMATION & CLIENT CHARGES

Hole No.	Previous Day's Total Footage	TODAY'S DRILLING RECORD Ft. of ~~Casing~~ PVC Set	Ft. of Overburden Drilled	Ft. of Hardrock Tri-Coned	Ft. of Hardrock Cored	Shelby's Taken Qty.	Shelby's Taken Ft.	Split Spoon's Taken Qty.	Split Spoon's Taken Ft.	Pressure Tests Taken Qty.	Pressure Tests Taken Ft.	Total of All Footage Drilled	Total Footage Drilled This Hole	Total Footage Chargeable Today	REMARKS
S-18		14'	14'									14'	14'	14'	
S-17		22'	22									22'	22'	22'	
Total Chargeable			36'											36'	

DISTRIBUTION OF DAILY HOURS

	HOURS WORKED	HOURS CHARGEABLE
TRAVEL HOURS	1	2
DRILL HOURS		½
STANDBY HOURS		
MOVING BETWEEN HOLES (HRS)		3
MAINTENANCE HOURS	3	
OTHER HOURS (DESCRIBE)	1	
TOTAL HOURS	5	5½

DISTRIBUTION OF DRILLING SUPPLIES CONSUMED
CHECK OFF NON-CHARGEABLE ITEMS (NC)

NC	QTY	SIZE	DESCRIPTION	NC	QTY	SIZE	DESCRIPTION

MOBILIZATION & DEMOBILIZATION

From ____ To ____

Total miles driven this date:
Total miles driven entire trip:

CLIENTS REMARKS:

CLIENTS APPROVAL OF CHARGES: X Ernest W. Bond

ALL APPLICABLE HOURS, FOOTAGE & SUPPLIES CONSUMED ARE CHARGEABLE AS SHOWN UNLESS OTHERWISE NOTED ABOVE.

BECKER APPROVAL. Kenneth C. Jong

GENERAL REMARKS—EXPLANATION OF MAINT. & OTHER HRS.

DROVE TO RIGS. DROVE RIGS TO DRILL LOCATION # S-18. SET UP, DRILLED TO 14' BOTTOMED HOLE, SET PIEZO PULLED DUMP DROVE TO SITE # S-17 SET UP, DRILLED TO 22' BOTTOMED HOLE, SET PIEZO. DROVE BACK TO 222 [illegible]

APPENDIX B

CUTTINGS DESCRIPTION

RBOSP S-15

Alluvial Test
June 23, 1975

RIO BLANCO OIL SHALE PROJECT

CUTTINGS DESCRIPTION

S-15

Location: NE-1/4 NE-1/4 NE-1/4 Sec. 27, T.1S., R. 99W
For Federal Oil Shale Tract C-a, Rio Blanco County, Colorado
Spudded: June 23, 1975
Completed: June 23, 1975
Total Depth: 22 feet

0' - 4'
Silt, sandy (very fine), tan to light brown, some clay, a few pebbles.

4' - 8'
Silt and clay, tan to light brown, dry, powdery, clay, dark gray, sticky, a few brown clay lumps. Clay is probably from the previous hole.

8' - 18'
Clay, silty, tan to light brown, powdery, dry, rock fragments, some gravel.

18' - 20'
Rock fragments, gray, sandy, black inclusions

20' - 22'
Bed rock, sandstone, very fine grained, silty, greenish-yellow to brown, very hard

Summary: 0' - 20' Alluvium
20'- 22' Unita Formation

Casing Record:
2-inch ID PVC
10 feet perforated, 12'-22'
12 feet plain

Comment: S-15 was drilled as staked. Negotiated creek crossing at S-16 to reach the site.

RBOSP [illegible]

APPENDIX C

CUTTINGS DESCRIPTION

RBOSP S-16

Alluvial Test
June 23, 1975

RIO BLANCO OIL SHALE PROJECT

CUTTINGS DESCRIPTION

S-16

Location: SE-1/4 NW-1/4 SW-1/4 Sec. 23, T. 1S., R. 99W.
For Federal Oil Shale Tract C-a, Rio Blanco County, Colorado

Spudded: June 23, 1975
Completed: June 23, 1975
Total Depth: 16 feet

0' - 4'
Clay, silty, light brown, a few blocky lumps, some very fine sand

4' -15'
Same as above, clay lumps have white inclusions, dry

15'-16'
Bedrock, sandstone, very fine grained, greenish yellow to brown, very hard

Summary: 0' - 15' Alluvium
15'- 16' Uinta Formation

Casing Record:
2-inch ID PVC
10 feet perforated, 6'-16'
6 feet plain

Comment: The original location for S-16 could not be reached without some bulldozer work. The drilled site, less than a quarter mile downstream, was picked to eliminate the need for dozer work.

APPENDIX D

CUTTINGS DESCRIPTION

RBOSP S-17

Alluvial Test
June 25, 1975

RIO BLANCO OIL SHALE PROJECT

CUTTINGS DESCRIPTION

S-17

Location: NW-1/4 SE-1/4 NE-1/4, Sec. 22, T.1S., R. 99W.
For Federal Oil Shale Tract C-a, Rio Blanco County, Colorado
Spudded: June 25, 1975
Completed: June 25, 1975
Total Depth: 22 feet

0' - 4'
Clay, silty, light brown to brown, Sand, very fine.

4' - 8'
Rock fragments, gravel sized to 2-inches across, Clay, sandy (very fine), silty, tan to light brown, some rounded pebbles.

8' -16'
Clay, sandy (very fine), silty, light brown to brown, a few gravel-sized fragments of very fine sandstone

16'-20'
Clay, sandy (very fine), silty, light brown to brown, Rock fragments, dry

20'-22'
Bedrock, Sandstone, very fine, silty, greenish yellow, very hard, dry

Summary: 0' - 20' Alluvium
20'- 22' Uinta Formation

Casin Record:
2-inch ID PVC
10 feet perforated, 12'-22'
12 feet plain

Comment: Couldn't find the stake for S-17, drilled where indicated by Mr. Darr.

APPENDIX E

CUTTINGS DESCRIPTION

RBOSP S-18

Alluvial Test
June 25, 1975

RIO BLANCO OIL SHALE PROJECT

CUTTING DESCRIPTION

S-18

Location: SW-1/4 SW-1/4 SE-1/4, Sec. 15, T.1S., R.99W.
For Federal Oil Shale Tract C-a, Rio Blanco County, Colorado
Spudded: June 25, 1975
Completed: June 25, 1975
Total Depth: 14 feet

0' - 4'
Topsoil, Clay, silty, light brown to brown, a few small sandstone fragments

4' - 8'
Clay, silty, light brown, dry, powdery, a few lumps

8' -12'
Clay, yellow-brown, powdery, Sand, very fine, silty

12'-14'
Bedrock, Sandstone, very fine grained, silty, yellowish-tan to brown, greenish tint, grinds to powder and fragments, very hard, dry.

Summary: 0' -12' Alluvium
12'-14' Uinta Formation

Casin Record:
2-inch ID PVC
10 feet perforated, 4'-14'
4 feet plain

Comment: Couldn't find the stake for S-18.

RBOSR PROGRESS REPORT

APPENDIX F

CUTTINGS DESCRIPTION

RBOSP S-19

Alluvial Test
June 21, 1975

RIO BLANCO OIL SHALE PROJECT

CUTTINGS DESCRIPTION

S-19

Location: SW-1/4 SW-1/4 NE-1/4, Sec. 12, T.1S., R.99W
For Federal Oil Shale Tract C-a, Rio Blanco County, Colorado
Spudded: June 21, 1975
Completed: June 21, 1975
Total Depth: 60 feet

0' - 4'
Topsoil and clay, silty, light brown to brown

4' - 8'
Clay, silty, light brown, a few blocky lumps

8' -12'
Clay, somewhat silty, light brown to brown, blocky lumps, black carbonaceous inclusions

12'-16'
Clay, somewhat silty, light brown to brown, powdery, a few brown blocky lumps.

16'-20'
Clay, a little silty, light brown, a few blocky lumps, the material varies from light brown to brown depending on moisture content-the more moisture, the darker the brown.

20'-28'
Clay, light brown to brown, a little silty

28'-36'
Clay, silty, light brown to brown, a few blocky lumps, feels like a little very fine sand.

36'-40'
Clay, silty, powdery, dry, light brown, some blocky lumps, a few rock fragments

40'-44'
Rock fragments, flat pieces to 1-1/2 inches, marlstone (?), Clay, Silty, light brown, hard drilling.

44'-52'
Clay, wet, a little silty, brown, Rock fragments

52'-57'
Same as above with rock fragments up to 3 inches by 2 inches

Alluvial Test
June 23, 1975

57'-60'

Bedrock, Uinta Formation sandstone, very fine grained, silty, greenish-yellow to brown, shows layering, very hard.

Summary: 0'-57' Alluvium
57'-60' Uinta Formation

Casing Record:
2-inch ID PVC
20-feet perforated, 40'-60'
40 feet plain

Comment: On moving to the next location, we had a large four wheel drive loader follow us in (to S-16). We used it to pull the rig up one hill.

APPENDIX G

CUTTINGS DESCRIPTION

RBOSP S-22

RBOSP PROCESSED REPORT

Alluvial Test
June 19, 1975

RIO BLANCO OIL SHALE PROJECT

CUTTINGS DESCRIPTION

S-22

Location: NE-1/4 SE-1/4 NE-1/4, Sec. 16, T.1S, R.98W
For Federal Oil Shale Tract C-a, Rio Blanco County, Colorado
Spudded: June 19, 1975
Completed: June 20, 1975
Total Depth: 81 feet

0' - 2'
Sand, fine to very fine, silt, some clay, some rounded gravel, sample is light brown to brown.

2' - 4'
Same, with a little more clay.

4' - 6'
Clay, silty, light brown, some Sand, very fine.

6' - 8'
Clay, light brown, silty, Gravel, rounded.

8' -10'
Same, with rock fragments to 2-1/2 inches

10'-18'
Clay, light brown, silty, Gravel, rounded, small rock fragments, 16'-18' at least one rock fragment to 2-1/2 inches.

18'-20'
Clay, sandy, silty, light brown, a few rock fragments, some gravel

20'-22'
Clay, silty, moist, light brown to brown

22'-24'
Same, with some gravel

24'-34'
Clay, sandy (very fine), silty, light brown to brown, some gravel

34'-58'
Clay, sandy (very fine), silty, light brown to brown, some gravel, rock fragments

58'-60'
Clay, sandy (very fine), silty, light brown, some blocky lumps, Rock fragments

Alluvial Test
June 19, 1975

60'-68'
Rock fragments up to 2", Clay, silty, light brown, not much sand

68'-70'
Gravel, rounded, Rock fragments to 1-1/4-inches, Clay, sandy, silty, light brown.

70'-72'
Clay, dark brown, wet, sandy, silty, gravel, Rock fragments up to 2-inches by 1-inches.

72'-78'
Rock fragments, up to 2-inches across, Clay, sandy (very fine), silty, light brown to brown

78'-80'
Rock fragments, broken and angular, some rounded pieces, some Clay, sandy, brown, sample is wet.

80'-81'
Bedrock, Uinta Formation sandstone, fine to very fine, silty very hard, greenish-yellow.

Summary: 0'-80' Alluvium
80'-81' Uinta Formation

Casing Record:
2-inch ID PVC
20 feet perforated, 61'-81'
61 feet plain

Comment: The samples were described the morning after the hole was drilled. These was only a small indication of water in the hole at the time of drilling, but upon standing water did enter the hole.

APPENDIX H

CUTTINGS DESCRIPTION

RBOSP S-23

Alluvial Test
June 20, 1975

RIO BLANCO OIL SHALE PROJECT

CUTTINGS DESCRIPTION

S-23

Location: NW-1/4 SE-1/4 NE-1/4, Sec. 8, T. 1S, R.98W
For Federal Oil Shale Tract C-a, Rio Blanco County, Colorado
Spudded: June 20, 1975
Completed: June 20, 1975
Total Depth: 83.5 feet

0' - 4'
Topsoil and clay, powdery, dry, light tan to light brown, some silt, a few rock fragments

4' - 8'
Clay, light brown, powdery, some silt

8' -16'
Clay, light brown, powdery, some silt, some small clay lumps

16'-20'
Clay, brown, damp, a little silty, a few block clay lumps that show finely layered bedding, material easily squeezed into a ball with no added moisture.

20'-24'
Clay, darker brown, moist, a little silty, makes clay balls easily

24'-32'
Clay, brown, slightly silty, wet, clay comes out in sticky wet balls with no layering

NOTE: The muddy material is beginning to impair circulation.

32'-48'
Clay, brown, wet and very sticky, some dark and rusty inclusions

48'-52'
Clay, brown, wet, sticky, Clay, blue to blue-gray, sticky

52'-56'
Clay, gray, sticky, some dark inclusions, a few rounded pebbles up to 2-inches long and 1/2 inch thick

56'-60'
Clay, gray, sticky, wet, the driller reported gravel in this interval, but none was in the sample.

60'-64'
Water bearing, Clay, brown, sticky, Gravel, pea-gravel and smaller, a few pebbles to 1/2 inch.

64'-68'
Clay, brown, sticky, wet, Clay, gray, sticky Rock fragments to 2-inches across, some gravel

68'-72'
Clay, gray, wet, sticky, a few rock fragments

72'-76'
Clay, gray, sticky, some gravel and rock fragments

76'-78'
Clay, gray, sticky

78'-83'
Sand, unconsolidated, brown, medium to very fine grained, silty, some marlstone fragments, some gravel. Production test at 78 feet produced 60 gpm.

83'-83-1/2'
Bedrock, Uinta Formation sandstone, greenish-yellow, very fine grained, silty, very hard

Summary:
0'-83' Alluvium
83'-83.5' Uinta Formation

Casing Record:
2-inch ID PVC
30 feet perforated, 53'-83'
53 feet plain

Comment: Hole produced 60 gpm at 78 feet. The well appeared to be developing. Bedrock is very hard.

APPENDIX I

CUTTINGS DESCRIPTION

RBOSP S-24

Alluvial Test
June 18, 1975

RIO BLANCO OIL SHALE PROJECT

CUTTINGS DESCRIPTION

S-24

Location: NW-1/4 NE-1/4 SE-1/4, Sec. 30, T.1S, R.98W
For Federal Oil Shale Tract C-a, Rio Blanco County, Colorado
Spudded: June 18, 1975
Completed: June 18, 1975
Total Depth: 75 feet

0' - 2'
Clay and Silt, light brown, lumps and powder, a few med to fine sand grains

2' - 4'
Clay and silt, light brown, powdery, some small lumps

4' - 6'
Same as above with a little fine sand

6' - 8'
Clay and Silt, brown to dark brown; some Sand, fine to very fine, a few pebbles to about 1/4 inch

8' -12'
Sand, white, sub-angular, medium to fine grained, dry; Clay and Silt, light brown

12'-14'
No returns

14'-16'
Clay and Silt, light brown, moist and lumpy (formed wet mud-balls); Sand, white, sub-angular, medium to fine grained

16'-20'
Clay, light brown to brown, wet and lumpy, a few darker rock fragments

20'-22'
Rock fragments, brown, fine to very fine grained, silty (Uinta Formation sandstone), wet

22'-24'
Clay, silt, sand, light brown, some sandstone fragments, very muddy sample

24'-26'
Sandstone fragments (Uinta Formation), light brown, sand size to 3/4 inch pebbles

26'-28'
Sandstone fragments (Uinta Formation), light brown to dark, fine to very fine grained, silty, sample very wet, poor sample return

28'-30'
Clay and silty clay, light brown to brown, very wet, a few sandstone fragments

30'-34'
Clay, light brown to brown, Clay, light blue, sticky, sample is very wet

34'-36'
Clay, blue, sticky, some Clay, brown, sample is very wet

36'-42'
Clay, blue, wet and sticky

42'-44'
Clay, gray-blue, sticky, some clay, brown

44'-46'
Rock fragments (Uinta Formation), brown, flat pea-gravel sized to 2 inches across, Clay, light brown, some clay, gray, sticky, sample is wet

46'-48'
Sand, light brown to brown, fine to very fine grained, Clay, blue, sticky, some silt and clay, brown

48'-50'
Clay, darker blue, sticky, some clay, brown

50'-56'
Clay, dark gray-blue, very sticky

56'-62'
Rock fragments, black, up to 2 inches across, Clay, blue, sticky

62'-66'
Water bearing, 5 to 10 gpm, Sand, medium to very fine, silty, light brown to brown, some sandstone, light gray, some Clay, blue, sticky, a few rock fragments of fine to very fine, light brown sandstone

66'-70'
Clay, dark blue to gray, sticky

NOTE: Blowing 15 to 20 gpm from hole from 62-66 feet

70'-72'
Gravel, pebbles and rocks to 1-1/2 inches by 3/4 inches, some sand, fine to very fine, some clay, blue, sticky, sample is light brown to brown

REOOP [illegible]

Alluvial Test
June 18, 1975

72'-74'
Rock fragments, banded, silty

74'-75'
Bedrock, Uinta Formation, Sandstone, fine to silt, light brown to gray, tight, very hard

Summary:
0'-74' Alluvium
74'-75' Uinta Formation (hard, stopped drill)

Casing Record:
2-inch ID PVC
40 feet perforated, 15'-35', 55'-75'
35 feet plain

Comment: During drilling, 10 to 20 gpm (est) of water was discharged from hole using air.

APPENDIX J

SPECIAL LAND USE PERMITS AND APPLICATIONS

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

COLORADO STATE OFFICE
ROOM 700, COLORADO STATE BANK BUILDING
1600 BROADWAY
DENVER, COLORADO 80202

IN REPLY REFER TO

5-943(A)

C-22624-SLUP

Certified Mail

June 11, 1975

DECISION

Standard Oil Company of Indiana &
Gulf Oil Corporation
c/o Rio Blanco Oil Shale Project
9725 E. Hampden Avenue
Denver, Colorado 80231

SPECIAL LAND-USE PERMIT ISSUED

Gulf Oil Corporation and Standard Oil Company of Indiana have filed an application under 43 USC, Sections 1, 2, and 1201 of the Act of September 19, 1964 (78 Stat. 986) for a Special Land-Use Permit on certain National Resource Lands for the purpose of gathering subsurface hydrology and environmental baseline data.

Pursuant to applicable regulations, it has been determined that the advance rental for the first year of the permit shall be the minimum amount of $10.00.

Payment of the advance rental has now been made. Accordingly, the Special Land-Use Permit referred to above is hereby issued, subject to the terms, conditions, and stipulations contained therein, or attached thereto, and made a part thereof. The violation of said terms, conditions, or stipulations shall be grounds for immediate cancellation of the permit.

The permittees have the right of appeal to the Board of Land Appeals, Office of the Secretary in accordance with the regulations contained in 43 CFR, Part 4, Subpart E. However, if an appeal is taken, notice of the appeal must be filed in the Colorado State Office, Bureau of Land Management, 700 Colorado State Bank Building, 1600 Broadway, Denver, Colorado 80202 (not with the Board), within 30 days from receipt of this Decision so that the case file can be transmitted to the Board. To avoid summary dismissal of the appeal, there must be strict compliance with the regulations.

Everett K. Weedin

Everett K. Weedin
Chief, Branch of Land Operations

Attachments:
  Form 2920-1, with attachments
  Appeal Information Form

cc: Oil Shale Environmental Advisory Panel

KEEP [illegible]

STIPULATIONS

1. All areas of surface disturbance will be rehabilitated and protected as specified by the Bureau of Land Management, District Manager. Rehabilitation shall include, but not be limited to, reshaping, seedbed preparation, and seeding. Specific requirements will be made on a case-by-case basis.

2. Sites will be kept clean and orderly, and all litter will be removed to specific areas designated by the Bureau of Land Management, District Manager.

3. No access roads will be constructed. Only cross country travel will be permitted. Hand clearing of brush will be allowed where necessary for equipment and vehicle passage.

4. Prior to undertaking any ground disturbing activities on lands covered under the provisions of this permit, this permittee shall:

   A. Engage the services of a qualified professional archeologist, (and an historian, when appropriate) acceptable to the lessor to conduct a thorough and complete intensive survey of areas to be disturbed for evidences of archeological or historic sites or materials. Said archeologist shall work under the authority of a current Antiquities Act permit, applicable to the area to be investigated.

   B. Provide the lessor sufficient time to review documentary evidence that a survey as required by (1) above, has been performed. This evidence shall be in the form of a report certified by the archeologist from the permittee to the lessor and shall cover, at a minimum: citation of permit authority, location of area(s) surveyed, methods of survey employed, report of findings, conclusions/recommendations.

   C. Follow the mitigation requirements set forth by BLM concerning protection, preservation, or disposition of any sites or material discovered. In cases where salvage excavation is necessary, the cost of such excavations shall be borne by the permittee.

   D. Immediately bring to the attention of an authorized officer of BLM any and all antiquities or other objects of historic or scientific interest including but not limited to historic or prehistoric ruins, fossils, or artifacts discovered as a result of operations under this permit and shall leave such discoveries intact until told to proceed by the lessor.

5. Permittee shall post a sign at each site, stating the identification name, legal location, and purpose of the site.

6. All permanent improvements will be painted a color to blend with the environment - for these locations, sagebrush green ("Colorizer" paint number M25-46).

7. Low growing vegetation removed from the small drill sites will not be pushed into piles, but will be scattered around the location.

8. If underground water is located having potential for later development as a livestock-wildlife water source, the District Manager will be provided sufficient data concerning potential pumping rates, etc., and the casing will be left in place to facilitate development at a later date.

RBCSP PROGRESS REPORT

STATE OF COLORADO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE

NOTICE OF INTENT TO CONDUCT OIL AND GAS EXPLORATION OPERATIONS

Name	Address (include zip code)
Rio Blanco Oil Shale Project	Dayton Commons 9725 East Hampden Avenue Denver, Colorado 80231

hereby files this "Notice of Intent to Conduct Oil and Gas Exploration Operations" across and upon (give description of lands by township(s) and range(s) with map).

	Township	Range	Section	Description
TH S-19	1 S	99W	12	1950' FNL, 2250' FEL
TH S-22	1 S	98W	16	1650' FNL, 400' FEL
TH S-24	1 S	98W	30	2500' FSL, 600' FEL

The type of operation to be pursued is ☐ magnetometer ☐ seismograph ☒ other (specify)

Approximate date of commencement of operations April 21, 1975. Estimated date of completion ________________. The Division of Wildlife Regional Manager shall be furnished a written notice of completion of operations.

The undersigned agrees that oil and gas exploration operations will be conducted pursuant to the following terms and conditions:

1. Exploration operations shall be conducted in compliance with all Federal, State and County laws, ordinances or regulations which are applicable to the area of operations including, but not limited to, those pertaining to fire, sanitation, conservation, water pollution, fish and game. All operations hereunder shall be conducted in a prudent manner.

2. Due care will be exercised in protecting lands in this notice. All necessary precautions shall be taken to avoid any damage other than normal wear and tear, to gates, bridges, roads, culverts, cattle guards, fences, dams, dykes, vegetative cover and improvements, and stock watering and other facilities. Operator shall pay to the person beneficially interested in the damaged object all damages caused by its operations to the surface, growing crops, pasture and improvements on said land or to animals or livestock.

3. Appropriate procedures shall be taken to protect any shafts, pits or tunnels; and shot holes shall be capped when not in use to protect the lives, safety, or property of other persons or of wildlife and livestock.

4. All vehicles shall be operated at a reasonable rate of speed, and due care must be taken to safeguard all livestock and wildlife in the vicinity of his operations. Bulldozers shall not be used without advance notification to the Regional Manager. Existing roads and trails shall be used; if new roads and trails are necessary a written permit m be obtained from the Regional Manager.

5. Upon the completion of any well drilled upon the premises or upon the abandonment of any well the Lessee will remove from the said lands all machinery and material brought by it thereon, and shall cause the well to be plugged, and will fill in and level off all excavations or pits made by it in connection with its use of the said lands, and shall generally restore and reseed the said lands and the means of ingress and egress therefrom to their present condition so far as reasonably possible, including the replacing of all fences which may be removed and the repair of all fences that may be damaged. Upon leaving the land, the Regional Manager shall be informed.

6. Upon request, the location and dep of water sands encountered shall b disclosed to the Regional Manager.

7. The party conducting such operatio shall contact the Wildlife Conserva tion Officer prior to actual entry upon the land in order to be apprai of the practices which should be fo lowed or avoided in the conduct of operations in order to minimize dam to property of the State of Colorad

8. Other stipulations: No roads are t be constructed and if road does not exist travel to site after drilling will be by foot so road will not be established through use.

9. Bond required

Alvin E. Rogers
(Signature of Regional Manager)

4-18-75
(Date)

Box 1687
Grand Junction, CO
(Address including zip code) 81501

RIO BLANCO OIL SHALE PROJECT

Carroll L. Jones
(Signature of ~~Geophysical~~ Operator)

April 25, 1975
(Date)

9725 E. Hampden Ave.
Denver, Colorado 80231
(Address including zip code)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 42-R0995

Serial Number C-22621

SPECIAL LAND-USE APPLICATION AND PERMIT
APPLICATION

INSTRUCTIONS ON REVERSE

75 APR 16

1. Name *(first, middle initial, and last)*
Gulf Oil Corporation
1720 So. Bellaire, Denver, Colo. 80222

Address *(include zip code)*
Standard Oil Company (Indiana)
9725 E. Hampden Ave., Denver, Colo. 80231

2. Give legal description of public lands for which you are applying

TOWNSHIP	RANGE	SECTION	SUBDIVISION
1S	99W	27	NE/4 NE/4
1S	99W	22	S/2 NE/4 SE/4, N/2 SE/4 SE/4
1S	99W	22	SE/4 NE/4
1S	99W	15	SW/4 SE/4
1S	98W	8	SE/4 NE/4

See attached Plat for Locations

Meridian	State	County	Acres *(number)*
6th	Colorado	Rio Blanco	200

3. For how many years are you requesting this permit? 2 years and as long thereafter as required by the USGS Area Oil Shale Supervisor

4a. Are you 21 years of age or over? ☒ Yes ☐ No

b. Are you a citizen of the United States or have you declared your intention? ☒ Yes ☐ No

c. As applicant, are you a ☐ Partnership ☐ Association ☒ Corporation; or an agency of ☐ Federal Government ☐ State Government ☐ Political subdivision of any state?

d. Are the statements required by Instruction Number 2 attached? ☒ Yes ☐ No ☐ Not applicable

5. Are you making this application for your own use and benefit? ☒ Yes ☐ No *(If "no," explain)*

Information obtained to be furnished to U.S.G.S.

6. Are the lands now improved, occupied, or used? ☐ Yes ☒ No *(If "yes," describe improvements and purposes, identify users and occupants)*

(Possible Grazing and Hunting on a seasonal basis)

7a. What do you propose to use the lands for?

Drilling five (5) water monitoring test holes to obtain subsurface hydrology and environmental baseline data in connection with oil shale Tract C-a, U.S.A. Lease C-20046

See attached Exhibit "A"

b. What improvements, including sanitation facilities, do you intend to make? *(Describe improvements and attach drawings, if convenient)*

Drilling five (5) water monitoring test holes plus protective covering for wellhead facilities.

Sanititation facilities will be rented portable units.

c. What is the estimated cost of proposed improvement? $ --

d. What is the proposed source of water for domestic or other uses?

Tank truck haulage

8. Have you enclosed filing fee of $10? ☒ Yes ☐ No *(See Instruction Number 3)*

I CERTIFY That the information given by me in this application is true, complete, and correct to the best of my knowledge and belief and is given in good faith.

April 15 1975
Date

GULF OIL CORPORATION
By
Its Attorney in Fact

RBOSP PROGRESS REPORT

STANDARD OIL COMPANY (INDIANA)

PERMIT

Permission is hereby granted to of	Gulf Oil Corporation 1780 S. Bellaire Denver, CO 80222	Standard Oil Company (Indiana) 9725 E. Hampden Ave. Denver, CO 80231

to use the following-described lands:

TOWNSHIP	RANGE	SECTION	SUBDIVISION
1 S.	99 W.	27	NE¼NE¼
1 S.	99 W.	22	S½NE¼SE¼, N½SE¼SE¼
1 S.	99 W.	22	SE¼NE¼
1 S.	99 W.	15	SW¼SE¼
1 S.	98 W.	8	SE¼NE¼

Meridian	State	County	Acres (*number*)
6th	Colorado	Rio Blanco	200

for the purpose of drilling five (5) water monitoring test holes to obtain subsurface hydrology and environmental baseline data in connection with oil shale tract C-a, U.S.A. Lease C-20046

and subject to the following conditions:

1. This permit is issued for the period specified below. It is revocable for any breach of conditions hereof or at the discretion of the authorized officer of the Bureau of Land Management, at any time upon notice, if in his judgment the lands should be devoted to another use. This permit is subject to valid adverse claims heretofore or hereafter acquired.

2. Permittee shall pay annually, in advance, to the authorized officer the sum of ten (10) dollars as rental or such other sum as may be required if a rental adjustment is made.

3. Permittee shall observe all Federal, State, and local laws and regulations applicable to the premises and to erection of maintenance of signs or advertising displays including the regulations for the protection of game birds and game animals, and shall keep the premises in a neat, orderly, and sanitary condition.

4. Use or occupancy of land under this permit shall commence within six months from date hereof and shall be exercised at least 30 days each year.

5. Permittee shall take all reasonable precautions to prevent and suppress forest, brush, and grass fire and prevent pollution of waters on or in the vicinity of the lands.

6. Authorized representatives of the Department of the Interior, other Federal agencies, and game wardens shall at all times have the right to enter the premises on official business.

7. Permittee shall not enclose roads or trails commonly in public use.

8. Permittee shall pay the United States for any damage to its property resulting from this use.

9. Permittee shall notify the authorized officer of address change immediately.

10. This permit is subject to all applicable provisions of the regulations (43 CFR 2920) which are made a part hereof.

11. Permittee agrees to have the serial number of this permit marked or painted on each advertising display erected or maintained under the authority of such permit.

12. Permittee shall not cut any timber on the lands without prior permission from the authorized officer.

13. This permit is subject to the provisions of Executive Order No. 11246 of September 24, 1965, as amended, which sets forth the Equal Opportunity clauses. A copy of this order may be obtained from the signing officer.

14. This permit may not be assigned without prior approval of the authorized officer of the Bureau of Land Management.

15. Special Conditions:

See attached stipulations.

Permit issued for period

From June 11, 1975

To June 10, 1980

(Authorized Officer)

Chief, Branch of Land Operations
(Title)

June 11, 1975
(Date)

INSTRUCTIONS

1. Submit, in *duplicate*, to any local office of the Bureau of Land Management having jurisdiction of the lands.

2. An application by a partnership or association must be accompanied by a statement by each member that he is a citizen of the United States or has filed a declaration to become a citizen. An application by a corporation must be accompanied by a statement showing that the corporation is authorized to hold land in the State in which the land is located and that the person making the application is authorized to act for the corporation.

3. If applicant is other than a Federal, State, or local governmental agency, this application must be accompanied by a nonreturnable filing fee of $10 made payable to the Bureau of Land Management.

4. If this application is for permission to erect an advertising display or sign, the applicant must: (a) attach an accurate and fully descriptive diagram, sketch, or photograph (at least 3" × 5") of the sign or display to be erected showing the dimensions, type of construction, estimated cost, the advertising material to be included thereon, the plan of illumination, if any, and the manner of attachment to the land; and, (b) a photograph (at least 3" × 5") showing the site on which the sign or display is to be erected.

RBOSP PROG[illegible]

BUREAU OF LAND MANAGEMENT
COLORADO STATE OFFICE

INFORMATION ON TAKING APPEALS TO THE BOARD OF LAND APPEALS

DO NOT APPEAL UNLESS

1. This decision is adverse to you,

AND

2. You believe it is incorrect.

IF YOU APPEAL THE FOLLOWING PROCEDURES MUST BE FOLLOWED:

1. NOTICE OF APPEAL . . . . Within 30 days file a Notice of Appeal in the office which issued this decision (see Sec. 4.411). You may state your reasons for appealing if you desire.

2. WHERE TO FILE NOTICE OF APPEAL . . . . . .

Colorado State Office
Bureau of Land Management
Room 700, Colorado State Bank Bldg.
Denver, Colorado 80202

3. STATEMENT OF REASONS . . . . . . Within 30 days after filing the Notice of Appeal, file a complete statement of the reasons why you are appealing. This must be filed with the Board of Land Appeals, Office of Hearings and Appeals 4015 Wilson Boulevard, Arlington, Virginia 22203 (see Sec. 4.412). If you fully stated your reasons for appealing when filing the Notice of Appeal, no additional statement is necessary.

4. ADVERSE PARTIES. . . . . Each adverse party named in the decision must be served with a copy of (a) the Notice of Appeal; (b) the statement of reasons; and, (c) any other documents filed, within 15 days after each document is filed (see Sec. 4.413).

5. PROOF OF SERVICE . . . . Within 15 days after any document is served on an adverse party, file proof of that service with the Board of Land Appeals, Office of Hearings and Appeals, 4015 Wilson Boulevard, Arlington, Virginia 22203. This may consist of a certified or registered mail "Return Receipt Card" signed by the advers party (see Sec. 4.401 (c)(2)).

NOTE: A document is not filed until it is actually received in the proper office.

OFFICE HOURS; TIME AND PLACE FOR FILING

Office hours of State Offices and place for filing. State Offices and the Washington Office of the Bureau of Land Management are open to the public for the filing of documents and inspection of records during the hours specified in this paragraph on Monday through Friday of each week, with the exception of those days where the office may be closed because of a national holiday or Presidential or other administrative order. The hours during which the State Offices and the Washington Office are open to the public for the filing of documents and inspection of records are from 10:00 a.m. to 4:00 p.m., standard time or daylight savings time, whichever is in effect at the city in which each office is located.

Any document required or permitted to be filed under the regulations of this chapter, which is received in the State Office or the Washington Office, either in the mail or by personal delivery when the office is not open to the public shall be deemed to be filed as of the day and hour the office next opens to the public.

Any document required by law, regulation, or decision to be filed within a stated period, the last day of which falls on a day the State Office or the Washington Office is officially closed, shall be deemed to be timely filed if it is received in the appropriate office on the next day the office is open to the public.

APPEALS PROCEDURE

Sec. 4.400 Definitions. As used in this part:

(a) "Secretary" means the Secretary of the Interior or his authorized representatives.

(b) "Bureau" means Bureau of Land Management.

(c) "Board" means the Board of Land Appeals in the Office of Hearings and Appeals, Office of the Secretary. The terms "office" or "officer" as used in this subpart include "Board" where the context requires.

Sec. 4.401 Documents.

(a) Grace period for filing. Whenever a document is required under this subpart to be filed within a certain time and it is not received in the proper office during that time, the delay in filing will be waived if the document is filed not later than 10 days after it was required to be filed and it is determined that the document was transmitted or probably transmitted to the office in which the filing is required before the end of the period in which it was required to be filed. Determinations under this paragraph shall be made by the officer before whom is pending the appeal in connection with which the document is required to be filed. This paragraph has no application to Subpart 1853 of Chapter II of this Title 43 of the Code of Federal Regulations except Sec. 1853.7(c).

(b) Transferees and encumbrancers. Transferees and encumbrancers of land the title to which is claimed or is in the process of acquisition under any public land law shall, upon filing notice of the transfer or encumbrance in the proper land office, become entitled to receive and be given the same notice of any appeal, or other proceeding thereafter initiated affecting such interest which is required to be given to a party to the proceeding. Every such notice of a transfer or encumbrance will be noted upon the records of the land office. Thereafter such transferee or encumbrancer must be made a party to any proceedings thereafter initiated adverse to the entry.

(c) Service of documents. (1) Wherever the regulations in this subpart require that a copy of a document be served upon a person, service may be made by delivering the copy personally to him or by sending the document by registered or certified mail, return receipt requested, to his address of record in the Bureau.

(2) In any case service may be proved by an acknowledgment of service signed by the person to be served. Personal service may be proved by a written statement of the person who made such service. Service by registered or certified mail may be proved by a post-office return receipt showing that the document was delivered at the person's record address or showing that the document could not be delivered to such person at his rec address because he had moved therefrom without leaving a forwarding address or because delivery was refused at that address or because no such address exists. Proof of service of a copy of a document should be filed in the same office in which the document is filed except that proof of service of a notice of appeal should be filed in the office of the officer to whom the appeal is made, if the proof of service is filed later than the notice of appeal.

(3) A document will be considered to have been served at the t of personal service, of delivery of a registered or certified lette or of the return by post office of an undelivered registered or certified letter.

Sec. 4.402 Summary dismissal. An appeal to the board will be subjec to summary dismissal by the Board for any of the following causes:

(a) If a statement of the reasons for the appeal is not includ in the notice of appeal and is not filed within the time required;

(b) If the notice of appeal is not served upon adverse parties within the time required; and

(c) If the statement of reasons, if not contained in the notic of appeal, is not served upon adverse parties within the time requir

APPEALS TO THE BOARD OF LAND APPEALS

Sec. 4.410 Who may appeal.

Except as otherwise provided in Group 2400 of Chapter II of th Title 43 of the Code of Federal Regulations, any party to a case th is adversely affected by a decision of an officer of the Bureau of Land Management or of an examiner, except a decision which has bee approved by the Secretary, shall have a right to appeal to the Boa

Sec. 4.411 Appeal; how taken, mandatory time limit.

(a) A person who wishes to appeal to the Board must file in the office of the officer who made the decision (not the Board) a notic that he wishes to appeal. The notice of appeal must give the serial number or other identification of the case and must be transmitted in time to be filed in the office where it is required to be filed within 30 days after the person taking the appeal is served with the decision from which he is appealing. The notice of appeal may incl a statement of the reasons for the appeal and any arguments the app lant wishes to make. This paragraph does not apply to [illegible] filed pursuant to Sec. 1853.7(a) of Chapter II of this Title 43 of Code of Federal Regulations.

(b) No extension of time will be granted for filing the notice of appeal. If a notice of appeal is filed after the grace period provided in Sec. 4.401(a), the notice of appeal will not be considered and the case will be closed by the officer from whose deci the appeal is taken. If the notice of appeal is filed during the period provided in Sec. 4.401(a) and the delay in filing is not wa as provided in that section, the notice of appeal will not be consi ered and the appeal will be dismissed by the Board.

Sec. 4.412 Statement of reasons, written arguments, briefs.

If the notice of appeal did not include a statement of the reasons for the appeal, such a statement must be filed with the Board (address: Board of Land Appeals, Office of Hearings and Appeals, 4015 Wilson Boulevard, Arlington, Virginia 22203) within 30 days after the notice of appeal was filed. Failure to file the statement of reasons within the time required will subject the appeal to summary dismissal as provided in Sec. 4.402, unless the delay in filing is waived as provided in Sec. 4.401(a). In any case the appellant will be permitted to file with the Board additional statements of reasons and written arguments or briefs within the 30-day period after he filed the notice of appeal.

Sec. 4.413 Service of notice of appeal and of other documents.

The appellant must serve a copy of the notice of appeal and of any statement of reasons, written arguments, or briefs on each adverse party named in the decision appealed from, in the manner prescribed in Sec. 4.401(c), not later than 15 days after filing the document. Failure to serve within the time required will subject the appeal to summary dismissal as provided in Sec. 4.402. Proof of such service as required by Sec. 4.401(c) must be filed with the Board (address: Board of Land Appeals, Office of Hearings and Appeals, 4015 Wilson Boulevard, Arlington, Virginia 22203), within 15 days after service unless filed with the notice of appeal.

Sec. 4.414 Answers.

If any party served with a notice of appeal wishes to participate in the proceedings on appeal, he must file an answer within 30 days after service on him of the notice of appeal or statement of reasons where such statement was not included in the notice of appeal. If additional reasons, written arguments, or briefs are filed by the appellant, the adverse party shall have 30 days after service thereof on him within which to answer them. The answer must state the reasons why the answerer thinks the appeal should not be sustained. Answers must be filed with the Board (address: Board of Land Appeals, Office of Hearings and Appeals, 4015 Wilson Boulevard, Arlington, Virginia 22203) and must be served on the appellant, in the manner prescribed in Sec. 4.401(c), not later than 15 days thereafter. Proof of such service as required by Sec. 4.401(c), must be filed with the Board (see address above) within 15 days after service. Failure to answer will not result in a default. If an answer is not filed and served within the time required, it may be disregarded in deciding the appeal, unless the delay in filing is waived as provided in Sec. 4.401(a).

ACTIONS BY BOARD OF LAND APPEALS

Sec. 4.415 Request for hearings on appeals involving questions of fact.

Either an appellant or an adverse party may, if he desires a hearing to present evidence on an issue of fact, request that the case be assigned to an examiner for such a hearing. Such a request must be made in writing and filed with the Board within 30 days after answer is due and a copy of the request should be served on the opposing party in the case. The allowance of a request for hearing is within the discretion of the Board, and the Board may, on its own motion, refer any case to an examiner for a hearing on an issue of fact. If a hearing is ordered, the Board will specify the issues upon which the hearing is to be held and the hearing will be held in accordance with Sec. 4.430 to 4.439, and the general rules in Subpart B of this part.

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APPENDIX 3

Summary and Basic Data for M-5, Bedrock Monitoring Well on 84 Mesa

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SUMMARY AND BASIC DATA
M-5 MONITORING WELL
RIO BLANCO OIL SHALE PROJECT

Introduction

Drilling of the M-5 monitoring well began on June 23, 1975 and total depth, 907 feet, was reached on June 30, 1975. The well was completed on July 1, 1975. A daily report is included as Appendix A.

Location

M-5 is about 4 1/2 miles northeast of the northeast corner of Tract C-a in the SW 1/4 NW 1/4 SW 1/4 Sec. 8, T1S, R98W, on the edge of the 84-Mesa. The location is preliminary as it has not been surveyed. An index map showing the approximate location of M-5 is included as Figure 1.

Drilling Method

Air rotary equipment capable of drilling 4,000 feet was used to drill M-5. The equipment is owned by Mr. John Toles of Rangely, Colorado.

Air for circulation was provided by two air compressors, one capable of 500 cubic feet per minute (cfm), the other 600 cfm, and both rated at 120 lbs. per square inch (psi). Water and soap injection was not used.

An 8 3/4-inch bit was used to drill the first 70 feet for the surface casing, and 4 3/4-inch bits were used from 70 feet to TD, 907 feet.

Well Logs

Electric and density logs were run on M-5 on June 30, 1975 by Birdwell, Inc. The logs were sent in to the Rio Blanco Oil

RBOSP F[illegible]

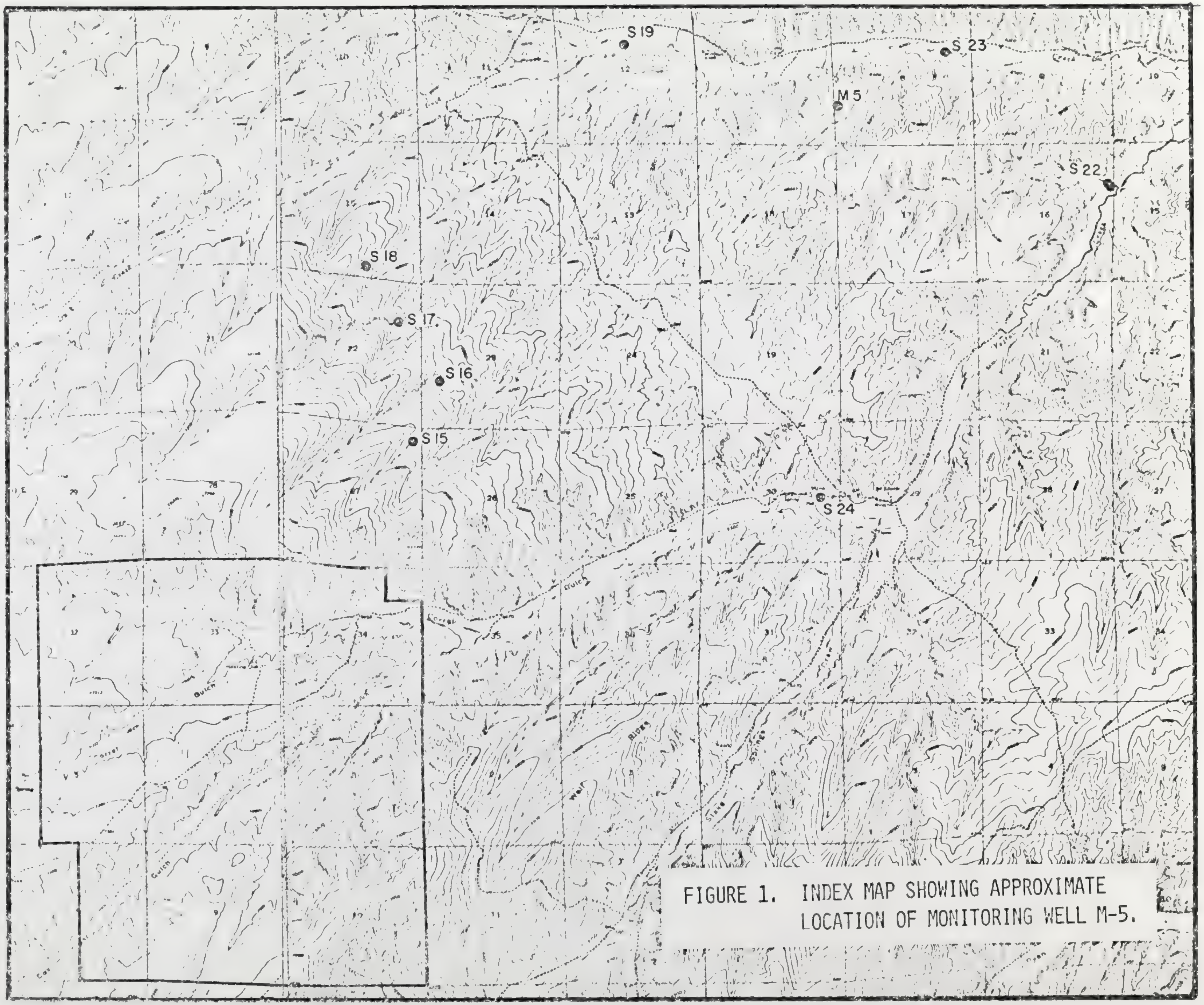

S19
S23
M5
S22
S18
S17
S16
S15
S24
Gulch
Corral
Well
Ridge
Spring

FIGURE 1. INDEX MAP SHOWING APPROXIMATE LOCATION OF MONITORING WELL M-5.

Shale Project (RBOSP) office by Mr. H.D. Jamison, Completion Engineer.

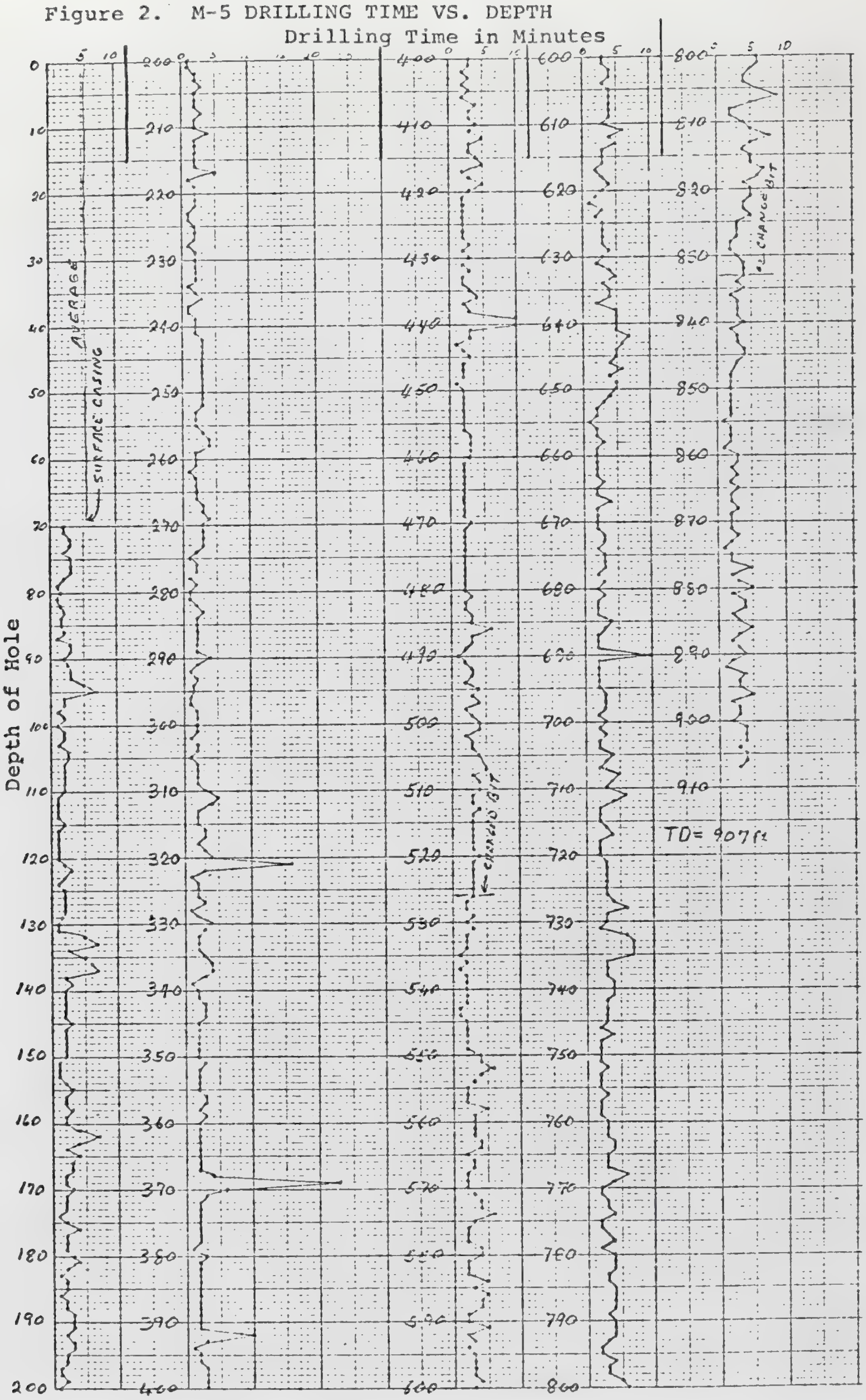
The drilling rig was not equipped with a geolograph, so data for a drilling time log was taken by hand. The basic data for the drilling time log is included as Appendix B, while the drilling time log is included as Figure 2.

Samples of the drill-cuttings were taken every five feet. A field description of the cuttings is included as Appendix B. Drilling began in the Uinta Formation and probably terminated in the upper Parachute Creek tongues of the Green River Formation; both formations are of Eocene time. On the whole, the cuttings were ground so fine that the field description may not be adequate to separate the two formations; a microscopic examination of the cuttings may be desirable.

Water Production

First water was encountered just before 280 feet. The crew stopped for the night, June 27, 1975, at 280 feet and the next morning there was water in the hole. Using the rig's air, discharge tests produced approximately 3 gpm. Measuring the discharge at the end of the air discharge pipe (blooey line) was attempted, but there was too much leakage at the wellhead for any accuracy. There was some indication that a little more water was encountered from 309' to 311' and 394'-396', perhaps 1 to 2 gpm total addition. Water production increased after 804 feet to 846 feet, then remained fairly steady to about 895 feet. Water production increased from 895 to 907 feet (TD) where a connection was attempted. During the two minutes it took to make the connection, the water level rose too high for the air compressors to eject the water from the hole and regain circulation. In order for this situation to occur, the water level had to rise more than 277 feet in two minutes.

Figure 2. M-5 DRILLING TIME VS. DEPTH



A 6-inch parshall flume was installed on June 29. The results are shown in Table 1. There were some problems at this point. The flume was too large for the flows being measured, and a smaller one was not immediately available even through the USGS office in Meeker. Another problem was that the flume had to be installed far enough away from the rig to catch the combined runoff from both the wellhead and the blooey line. The weathered ground surface is quite permeable and a significant, but unknown quantity of the water was lost before it could reach the flume.

Water Quality

The quality of the water produced from M-5 during drilling is given in Table 2. A water sample exists for the first water encountered, but this water was sampled again on July 16, 1975. The latter sample is not as muddy as the first and for this reason, will provide a better picture of the water quality of the first water.

Well Completion

The general construction of the M-5 monitoring well is given in Figure 3. Only the first water is being monitored. The completion technique used for M-5 allows for monitoring the "upper" aquifer at a later date. This procedure is documented as follows:

First, the zone open to the perforations must be squeezed out with cement under pressure. Enough water must be pumped in behind the cement to clear the 2 3/8-inch tubing. Then the cement must be allowed to set.

Next, the 2 3/8 tubing must be cleared of any residual cement and the sand overlying the upper tubing disk. This can be done with 1-inch or smaller pipe and water circulation.

TABLE 1

WATER PRODUCTION DRILLING DRILLING OF M-5

Formula for parshall flume of 6-inch throat width is $Q=2.06\ Ha^{158}$. Q=flow rate in cubic feet per second, and Ha=the height of the water in feet flowing through the flume.

Date	Time	Depth of M-5 (ft.)	Flume Staff Gage (ft.)	Cubic Feet per Second (cfs)	Gallons per Minute (gpm)
6/29/75	18:16	793	0.03	0.0081	3.6
	19:00	804	0.04	0.0127	5.7
	19:57	815	0.05	0.0181	8.1
6/30/75	02:13	846	0.08	0.0381	17.1
	04:20	876	0.08	0.0381	17.1
	06:11	907	0.08	0.0381	17.1
	07:56	907	0.07	0.3081	13.8
	Pulled back, 610 feet of drill pipe in hole				
	08:30	907	0.08	0.0381	17.1
	08:38	907	0.09	0.459	20.6

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TABLE 2

QUALITY OF WATER FROM M-5 DURING DRILLING

Date	Time	Depth M-5 (ft.)	Temp °C	Field Spec Conductance	Spec Cond Compensated to 25°C[1]	pH	Remarks
6/27/75	08:54	285	14.8	2600@14.8°C	3420	7.0	First Water
	10:08	295	13.5	3500@13.5	4800	6.8	
	14:29	350	14.0	1600@14.0	2160	7.0	
6/28/75	15:45	569	15.0	1500@15.0	1960	6.8	
	17:26	600	13.7	1500@15.0	1960	6.8	
	19.14	630	12.8	1400@12.8	1960	6.8	
6/29/75	09:48	645	14.0	1300@14.0	1750	6.8	
	10:41	660	14.0	1500@19.0	1745	6.8	
	11:52	689	15.0	1400@17.8	1685	6.8	
	13:27	720	14.8	1200@14.0	1620	6.8	
	15:41	750	29.6	1700@29.6*	1535	7.0	
	17:28	783	22.1	1800@22.1*	1930	7.0	
	19:57	815	9.5	1000@ 9.5	1570	7.2	
6/30/75	02:13	846	9.5	1000@ 9.5	1570	6.8	
	04:55	877	10.7	990@10.7	1490	7.0	
	06:11	907	11.9	990@11.9	1430	7.0	
	07:55	907	11.5	1000@11.5	1465	6.8	

*Sample stood in sun for a while

[1] Formula to compensate Specific Conductivity $=A_{(25°C)}=A_{(t°C)}/[1 + B(t-25)]$

$A_{(25°C)}$=Specific Conductance @ 25°C; $A_{(t°C)}$=uncompensated SPEC COND; s=constant=0.0235;

t=temp°C

RBOSP P[illegible] REPORT

Then, the tubing disks are knocked out (as they are designed to be easily broken) with a bar or the circulation tubing.

Finally, circulating to bottom to clean out any cavings, and the "upper" aquifer is ready to be monitored.

Bailing Test

On July 16, 1975, a bailing test was conducted to make sure that the water bearing zone was open to the well. First, the static water level was measured. Then, 5 gallons of water were bailed out of the hole with a stainless steel sampler that holds slightly more than 1/2 gallon. Afterwards, the static water level was measured again to see if it had recovered, and it had. Five gallons of water is enough to lower the water level inside 2 3/8-inch tubing by 30 feet. Considering the annulus outside the tubing the lowering of the water level would be less.

The results of the bailing test are given in Table 3.

After the conclusion of the bailing test, a water sample was taken and entered into the sampling and monitoring program being conducted by Wright Water Engineers, Inc. for the Rio Blanco Oil Shale Project.

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Figure 3. GENERAL CONSTRUCTION OF M-5 MONITORING WELL

NOT TO SCALE

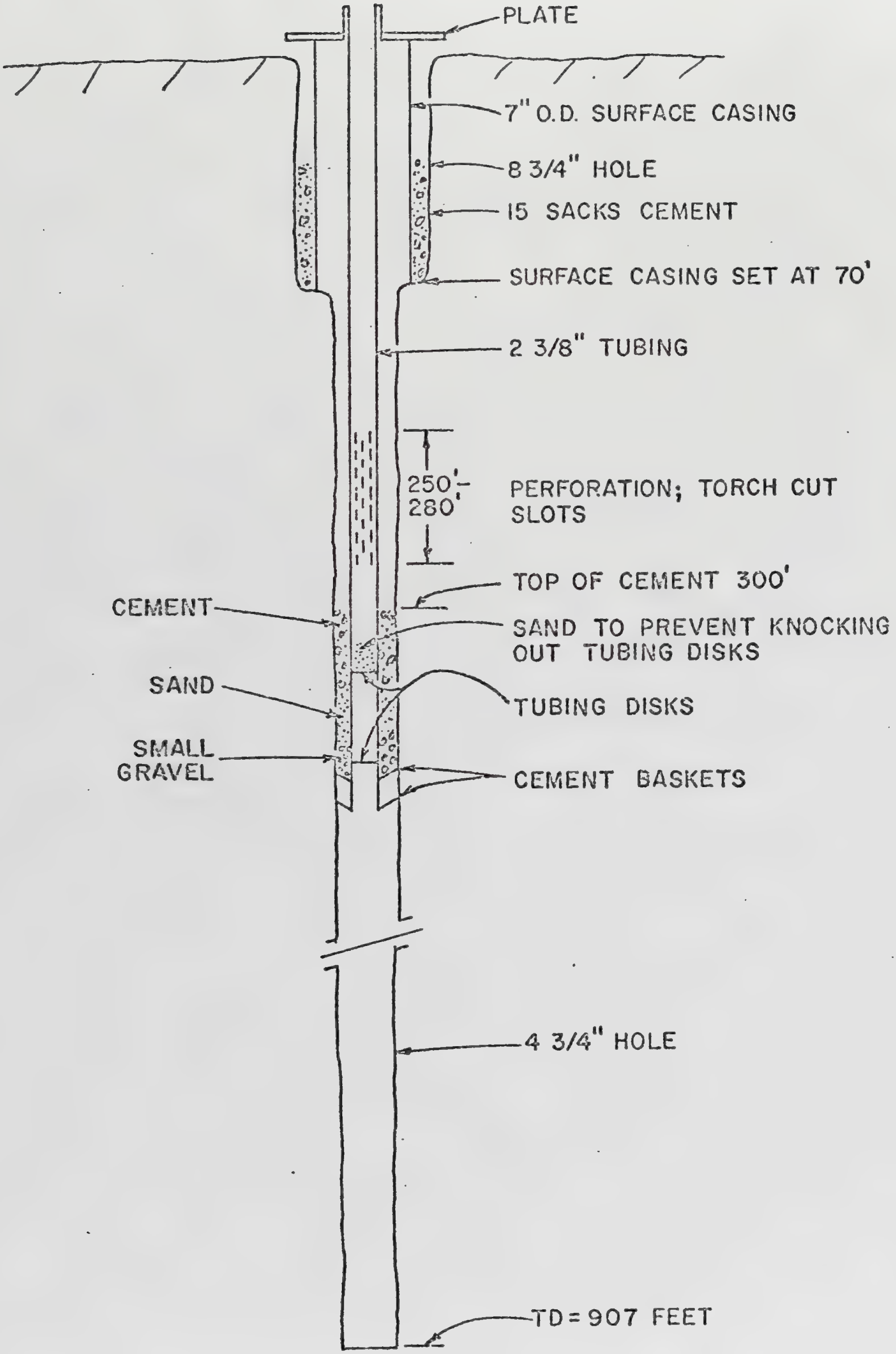
PLATE
7" O.D. SURFACE CASING
8 3/4" HOLE
15 SACKS CEMENT
SURFACE CASING SET AT 70'
2 3/8" TUBING
250'-280'
PERFORATION; TORCH CUT SLOTS
TOP OF CEMENT 300'
CEMENT
SAND TO PREVENT KNOCKING OUT TUBING DISKS
SAND
TUBING DISKS
SMALL GRAVEL
CEMENT BASKETS
4 3/4" HOLE
TD = 907 FEET

TABLE 3

WATER QUALITY DURING BAILING TEST OF M-5

Date	Time	SWL (ft.)	Bailer No.	Uncompensated Specific Conductance	At temp °C	Spec Cond Compensated to 25°C	pH	Remarks
7/16/75	14:25	236.39						
	14:50		1	2400	11.5	3515	6.8	Top sampler
	14:52		2	2400	11.5	3515	7.0	stopped at
	14:55		3	2400	11.5	3515	7.0	280 feet
	14:58		4		-LOST THE WATER-			
	15:00		5	2400	11.2	3550	6.8	Water is dirty;
	15:03		6	2450	11.2	3550	7.0	mostly rust
	15:05		7	2450	11.5	3590	7.0	and scale from
	15:07		8	2450	11.5	3590	7.0	pipe
	15:09		9	2450	11.5	3590	7.0	
	15:12		10	2450	11.5	3590	7.0	
	15:28	236.65						
	15:37	236.17						

Note: The stainless steel sampler was used to bail the water out. The water was dumped into a 5-gallon bucket for measurement. The 9 samplers full added up to 5 gallons of water. A regular water quality sample was taken after the conclusion of this test.

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APPENDIX A

CUTTINGS DESCRIPTION

RBOSP M-5

RBOSP [illegible]

RIO BLANCO OIL SHALE PROJECT

CUTTINGS DESCRIPTION

M-5

Location:

Spudded: June 23, 1975
Completed: July 1, 1975
Total Depth: 907 feet

0' - 5'

Marlstone, silty, sandy, whitish gray, hard, clay and silt, limey, buff-colored, rather soft.

5' - 10'

Clay and silt, limey, buff, varies in hardness, marlstone, silty, whitish gray, hard.

10' - 15'

Sand, very fine, silty, brown, silt, clayey, buff, some marlstone, whitish gray, hard.

15' - 20'

Sand, medium to very fine, silty, brown, black mica (?) flicks, golden mica flecks, some clay, some whitish marlstone fragments, sample in damp and calcareous.

20' - 45'

Sand, fine to very fine, silty, light brown, calcareous. Some came out as calcareous sandstone fragments with black mica (?) inclusions.

45' - 50'

Same as above with some marlstone, silty, gray-brown.

50' - 70'

Siltstone, clayey, calcareous, soft, white, powder is buff, marlstone, gray-brown, some clay, brown, sandy.

Note: 7-inch OD surface casing was set at 70 feet. Drilled from 70 feet on with a 4 3/4-inch bit.

70' - 75'
Sandstone, fine to very fine, silty, calcareous, brown, moderately indurated, calcite, white, vein or vug filling.

75' - 85'
Sand, fine to very fine, silty, light brown, a few fragments of calcareous sandstone, soft and friable.

85' - 165'
Siltstone, calcareous, light gray (sample is near the color of cement), some siltstone, calacreous, buff.

155' - 165'
Marlstone, silty, light gray (cement colored).

165' - 170'
Same as above with some sandy brown clay.

170' - 195'
Marlstone, silty, cement colored, a few golden mica flecks.

195' - 215'
Marlstone, varied dark and light, marlstone, massive, gray, silty.

215' - 220'
Siltstone, calcareous, gray, marlstone, silty, light and gray, pyrite, nodule fragments.

220' - 230'
Marlstone, silty, gray, ground very fine.

230' - 235'
Same as above with some soft, brown organic clay.

235' - 280'
Marlstone, silty, gray, ground very fine.

Note: Drilling crew was working days and stopped for the night at 280 ft. The next morning there was water in the hole.

280' - 285'
Marlstone, silty, gray, ground from medium sand size to clay size.

285' - 300'
Samples missing, no return.

300' - 315'
Marlstone, silty, gray, ground medium to clay sized, a few mica flecks, some gray calcareous siltstone.

315' - 335'

Siltstone, calcareous, sandy (very fine), gray, marlstone, silty, gray, ground sand gravel size, a few mica flecks.

335' - 355'

Siltstone, calcareous, sandy (very fine), gray, mica flecks, a few white chips of marlstone.

355' - 365'

Siltstone, calcareous, sandy (very fine), gray, mica flecks, some siltstone, buff, soft.

365' - 405'

Siltstone, calcareous, gray, mica flecks, some buff, sandy siltstone, some light gray, dense limestone.

405' - 410'

Siltstone, calcareous, sandy (very fine), gray, pyrite fragments, some light gray, silty marlstone.

410' - 420'

Siltstone, somewhat calcareous, gray, some marlstone, white to light gray, some sandstone, very fine grained, buff, silty.

420' - 430'

Sand, fine to very fine, angular, siltstone, gray, pyrite fragments, sandstone, fine to very fine, silty, buff, marlstone fragments, light gray.

430' - 435'

Sand, fine to very fine, subangular to subrounded, white, frosted, and clear grains, some siltstone, gray, a few fragments of sandstone, fine to very fine, calcareous, buff.

435' - 445'

Siltstone, gray, sand, fine to very fine, gray marlstone fragments, light gray, sandstone, fine to very fine, buff, pyrite fragments.

445' - 455'

Siltstone, gray, hard, marlstone, light gray to white, sand, fine to very fine, gray, sandstone, fine to very fine, buff to brown, pyrite fragments.

455' - 465'

Sand, fine to very fine, silty, salt & pepper, a few very friable fragments, marlstone fragments, light gray, sandstone, fine to very fine, silty, buff.

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465' - 470'

Sand, fine to very fine, silty, gray-salt & pepper.

470' - 480'

Sand as above, sandstone, fine to very fine, silty, buff to brown, silty, marlstone fragments.

480' - 485'

Sand, fine to very fine, silty, gray-salt & pepper, marlstone fragments, light gray.

485' - 500'

Sand, fine to silt, gray-salt & pepper.

500' - 505'

Sand as above, marlstone fragments, light gray, a few fragments sandstone, fine to very fine, buff.

505' - 510'

Siltstone, gray, calcareous, sand, fine to very fine, salt & pepper, a few fragments of friable salt & pepper sandstone, brown sandstone and light gray marlstone.

510' - 525'

Sand, fine to silt, gray-salt & pepper, calcareous.

525' - 530'

Sandstone, fine to silt, calcareous, gray, a few fragment light marlstone and fine, brown sandstone.

530' - 545'

Sand, fine to silt, gray-salt & pepper, quartzose.

545' - 565'

Sand, very fine to silt, calcareous, gray.

565' - 570'

Sand, fine to silt, quartzose, salt & pepper, siltstone, calcareous, gray, hard, sandstone fragments, medium grained, hard, light marlstone fragments.

570' - 585'

Sand, fine to silt, calcareous, gray.

585' - 595'

Sand, fine to silt, calcareous, gray-brown, becoming more the color of oil shale.

595' - 600'

Sand as above, siltstone, gray, marlstone fragments, light, a few fragments sandstone, medium grained, salt & pepper, hard.

600' - 610'
Sand, very fine to silt, calcareous, gray-brown, the color of oil shale.

610' - 615'
Sand as above, with white marlstone fragments.

615' - 620'
Sand, very fine to silt, calcareous, gray-brown.

620' - 625'
Sand, fine to silt, calcareous, dark gray to gray brown.

625' - 630'
Sand, fine to silt, calcareous, gray brown.

630' - 635'
Sand as above, marlstone, light gray, some varved.

635' - 640'
Sand, fine to silt, calcareous, gray-brown.

640' - 645'
Sand, fine to silt, calcareous, dark gray-brown, many more dark grains.

645' - 675'
Sand, fine to silt, calcareous, gray-brown.

675' - 700'
Sand, fine to silt, calcareous, gray.

700' - 705'
Sand, fine to silt, slightly calcareous, gray.

705' - 720'
Sand, fine to silt, calcareous, gray to gray-brown.

720' - 725'
Sand as above, a few marlstone fragments, white to light gray.

725' - 730'
Sand, fine to silt, calcareous, gray to gray-brown.

730' - 735'
Sand, fine to silt, calcareous, dark gray-brown.

735' - 740'
Sand, fine to silt, calcareous, gray-brown, sandstone, fine to very fine, silty, calcareous, gray.

740' - 780'
Sand, fine to silt, calcareous, gray-brown.

780' - 785'
Sand, fine to silt, slightly calcareous, gray.

785' - 790'
Sand, fine to silt, calcareous, gray.

790' - 800'
Sand, fine to silt, calcareous, gray-brown.

800' - 815'
Sand, fine to silt, calcareous, dark gray-brown.

815' - 825'
Sand as above, fragments of varved marlstone, siltstone fragments, gray, a few white marlstone fragments.

825' - 830'
Sand, fine to very fine, calcareous, gray-brown.

830' - 835'
Sand as above, marlstone fragments, white to light gray.

835' - 840'
Sand, fine to very fine, slightly calcareous, gray, claystone, calcareous, white to light gray.

840' - 850'
Sand, fine to very fine, slightly calcareous, gray, sandstone, fine to very fine, calcareous, light gray, siltstone, light gray, calcareous.

850' - 860'
Sand, fine to silt, calcareous, gray-brown.

860' - 870'
Sand, fine to silt, slightly calcareous, gray to light gray, mica flecks.

870' - 895'
Sand, fine to very fine, dolomite (?), white to light gray with black grains (salt & pepper).

895' - 905'
Sand as above but gray-brown, slightly calcareous.

RBOSP

APPENDIX B

BASIC DATA FOR DRILLING TIME LOG

RBOSP M-5

averaged 5.5 minutes per foot. M-5 drill hole.

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/26/75	09:00	2	70	
		2	71	
		3	72	
		3	73	
		2	74	
		3	75	
		3	76	
		3	77	
		2	78	
		1	79	
		1 1/2	80	
		1	81	
		1 1/2	82	
		2	83	
		1 1/2	84	
		1 1/2	85	
	09:35	2	86	
		1	87	
		3	88	
		3	89	
		2	90	
		2 1/2	91	
		3	92	conn.
	10:08	3	93	
		5	94	
		7	95	
		2	96	
		2	97	
		1	98	
		2	99	
		1	100	
6/26/75	10:08	2	101	
		2	102	
		1	103	
		2 1/2	104	
		2 1/2	105	
		2	106	
		2	107	
		2	108	
		2	109	
		2	110	
		1	111	
		1	112	
		1	113	
		1	114	
		2	115	
		1	116	
		1	117	
		1	118	
		1	119	
		1	120	
	11:08	2	121	
		3	122	
		2	123	
		1	124	
		2	125	
		2	126	
		2	127	
		2	128	
		1 1/2	129	
		1	130	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks	Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/26/75	11:08	1	131		6/26/75	13:38	4	161	
		5	132			13:45	7	162	
	12:07	7	133			13:49	4	163	
		2 1/2	134			13:51	2	164	
		2 1/2	135			13:55	4	165	
		3	136			13:58	3	166	
		2	137			14:01	3	167	
	12:19	2	138			14:03	2	168	
	12:22	3	139			14:05	2	169	
	12:24	2	140			14:08	3	170	
		2	141			14:10	2	171	
		2	142			14:12	2	172	
	12:30	2	143			14:14	2	173	
		2	144			14:15	1	174	
	12:35	3	145			14:17	2	175	
		2	146			14:21	4	176	
		2	147			14:23	2	177	
		2	148			14:25	2	178	
		2	149			14:27	2	179	conn.
	12:45	2	150			14:43	3	180	
		1	151	conn.		14:47	4	181	
	13:15	1	152			14:49	2	182	
		1	153			14:50	1	183	
		2	154			14:52	2	184	
	13:23	3	155			14:54	2	185	
		2	156			14:55	1	186	
		2	157			14:57	2	187	
		3	158			14:59	2	188	
		2	159			15:02	3	189	
	13:34	2	160			15:05	3	190	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/26/75	15:08	3	191	
	15:10	2	192	
	15:13	3	193	
	15:16	3	194	
	15:18	2	195	
	15:20	2	196	
	15:21	1	197	
	15:22	1	198	
	15:24	2	199	
	15:25	1	200	
	15:26	1	201	
	15:28	2	202	
	15:30	2	203	
	15:33	3	204	
	15:35	2	205	
	15:37	2	206	
	15:39	2	207	
	15:42	3	208	
	15:44	2	209	conn.
	15:56	2	210	
	16:00	4	211	
	16:02	2	212	
	16:04	2	213	
	16:06	2	214	
	16:08	2	215	
	16:10	2	216	
	16:15	5	217	
	16:16	1	218	
	16:18	2	219	
	16:20	2	220	
6/26/75	16:22	2	221	
	16:24	2	222	
	16:25	1	223	
	16:26	1	224	
	16:28	2	225	
	16:30	2	226	
	16:32	2	227	
	16:33	1	228	
	16:35	2	229	
	16:37	2	230	
	16:39	2	231	
	16:41	2	232	
	16:43	2	233	
	16:44	1	234	
	16:46	2	235	
	16:49	3	236	
	16:50	1	237	conn.
	17:06	1	238	
	17:08	2	239	
	17:10	2	240	
	17:12	2	241	
	17:15	3	242	
	17:18	3	243	
	17:21	3	244	
	17:24	3	245	
	17:27	3	246	
	17:30	3	247	
	17:33	3	248	
	17:36	3	249	
	17:39	3	250	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks	Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/26/75	17:42	3	251		6/27/75	08:45	1	281	
	17:45	3	252			08:47	2	282	
	17:47	2	253			08:50	3	283	
	17:49	2	254			08:52	2	284	
	17:51	2	255			08:54	2	285	
	17:54	3	256			09:40	2	286	
	17:58	4	257			09:52	2	287	
	18:02	4	258			09:54	2	288	
	18:04	2	259			09:56	2	289	
	18:06	2	260			10:00	4	290	
	18:08	2	261			10:02	2	291	
	18:09	1	262			10:03	1	292	
	18:11	2	263			10:05	2	293	
	18:13	2	264			10:06 1/2	1 1/2	294	
	18:15	2	265	conn.		10:08	1 1/2	295	
	18:27	2	266			12:04	1	296	
	18:30	3	267			12:05	1	297	
	18:33	3	268			12:07	2	298	
	18:37	4	269			12:09	2	299	
	18:40	3	270			12:11	2	300	
	18:43	3	271			12:13	2	301	
	18:46	3	272			12:14	1	302	
	18:49	3	273			12:16	2	303	
	18:51	2	274			12:18	2	304	
	18:52	1	275			12:19	1	305	
	18:54	2	276			12:21	2	306	
	18:56	2	277			12:23	2	307	
	18:57	1	278			12:25	2	308	
	18:59	2	279			12:27	2	309	
	19:00	1	280			12:30	3	310	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/27/75	12:35	5	311	
	12:39	4	312	
	12:41	2	313	
	12:43	2	314	
	12:45	2	315	
	12:48	3	316	
	12:51	3	317	
	12:53	2	318	
	12:56	3	319	
	13:00	4	320	
	13:16	16	321	
	13:19	3	322	
	13:20	1	323	
	13:22	2	324	
	13:24	2	325	
	13:26	2	326	conn.
	13:33	3	327	
	13:34	1	328	
	13:36	2	329	
	13:40	4	330	
	13:43	3	331	
	13:45	2	332	
	13:47	2	333	
	13:49	2	334	
	13:52	3	335	
	13:56	4	336	
	14:00	4	337	
	14:03	3	338	
	14:04	1	339	
	14:06	2	340	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/27/75	14:08	2	341	
	14:11	3	342	
	14:14	3	343	
	14:17	3	344	
	14:19	2	345	
	14:21	2	346	
	14:23	2	347	
	14:25	2	348	
	14:27	2	349	
	14:29	2	350	
	14:32	3	351	
	14:34	2	352	
	14:36	2	353	
	14:38	2	354	
	14:40	2	355	
	14:43	3	356	conn.
	14:51	3	357	
	14:53	2	358	
	14:56	3	359	
	14:58	2	360	
	15:00	2	361	
	15:02	2	362	
	15:04	2	363	
	15:06	2	364	
	15:08	2	365	
	15:10	2	366	
	15:12	2	367	
	15:16	4	368	
	15:39	23	369	
	15:45	6	370	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/27/75	15:48	3	371	
	15:50	2	372	
	15:52	2	373	
	15:54	2	374	
	15:56	2	375	
	15:58	2	376	
	16:00	2	377	
	16:02	2	378	
	16:03	1	379	
	16:06	3	380	
	16:08	2	381	
	16:10	2	382	
	16:12	2	383	
	16:14	2	384	
	16:16	2	385	
	16:18	2	386	
	16:20	2	387	
	16:27	2	388	
	16:29	2	389	
	16:31	2	390	
	16:33	2	391	
	16:43	10	392	
	16:46	3	393	
	16:47	1	394	
	16:49	2	395	
	16:51	2	396	
	16:54	3	397	
	16:57	3	398	
	17:00	3	399	
	17:03	3	400	
6/27/75	17:06	3	401	
	17:08	2	402	
	17:11	3	403	
	17:13	2	404	
	17:16	3	405	
	17:18	2	406	
	17:22	4	407	
	17:25	3	408	
	17:28	3	409	
	17:32	4	410	
	17:35	3	411	
	17:40	5	412	
	17:43	3	413	
	17:46	3	414	
	17:50	4	415	
	17:55	5	416	
	17:57	2	417	conn.
	18:05	3	418	
	18:10	5	419	
	18:13	3	420	
	18:15	2	421	
	18:17	2	422	
	18:19	2	423	
	18:21	2	424	
	18:23	2	425	
	18:25	2	426	
	18:27	2	427	
	18:30	3	428	
	18:32	2	429	
	18:35	3	430	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks	Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/27/75	18:37	2	431		6/28/75	08:29	2	461	
	18:40	3	432			08:31	2	462	
	18:42	2	433			08:33	2	463	
	18:44	2	434			08:35	2	464	
	18:47	3	435			08:37	2	465	
	18:51	4	436			08:39	2	466	
	18:53	2	437			08:41	2	467	
	18:56	3	438			08:43	2	468	
	19:06	10	439			08:45	2	469	
	19:16	10	440			08:48	3	470	
	19:19	3	441			08:50	2	471	
	19:22	3	442			08:52	2	472	
	19:23	1	443			08:54	2	473	
	19:25	2	444			08:56	2	474	
	19:28	3	445			08:58	2	475	
	19:31	3	446			09:00	2	476	conn.
	19:34	3	447			09:07	2	477	
6/28/75	08:00	2	448			09:09	2	478	
	08:01	1	449			09:11	2	479	
	08:03	2	450			09:13	2	480	
	08:05	2	451			09:16	3	481	
	08:07	2	452			09:18	2	482	
	08:09	2	453			09:20	2	483	
	08:11	2	454			09:23	3	484	
	08:13	2	455			09:26	3	485	
	08:15	2	456			09:32	6	486	
	08:18	3	457			09:35	3	487	
	08:21	3	458			09:38	3	488	
	08:24	3	459			09:40	2	489	
	08:27	3	460			09:41	1	490	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/28/75	09:43	2	491	
	09:46	3	492	
	09:49	3	493	
	09:51	2	494	
	09:55	4	495	
	09:58	3	496	
	10:02	4	497	
	10:04	2	498	
	10:07	3	499	
	10:11	4	500	
	10:15	4	501	
	10:18	2	502	
	10:20	3	503	
	10:23	3	504	
	10:27	4	505	conn.
	10:39		506	
	10:44	5	507	
	10:47	3	508	
	10:51	4	509	
	10:55	4	510	
	10:58	3	511	
	11:01	3	512	
	11:05	4	513	
	11:08	3	514	
	11:11	3	515	
	11:14	3	516	
	11:17	3	517	
	11:20	3	518	
	11:23	3	519	
	11:27	4	520	
6/28/75	11:30	3	521	
	11:33	3	522	
	11:36	3	523	
	11:39	3	524	
	11:42	3	525	
	11:45	3	526	trip
	13:55	2	527	
	13:57	2	528	
	14:00	3	529	
	14:02	2	530	
	14:05	3	531	
	14:07	2	532	
	14:09	2	533	
	14:11	2	534	
	14:12	1	535	
	14:14	2	536	
	14:15	1	537	conn.
	14:22	2	538	
	14:24	2	539	
	14:26	2	540	
	14:28	2	541	
	14:30	2	542	
	14:31	1	543	
	14:32	1	544	
	14:34	2	545	
	14:36	2	546	
	14:38	2	547	
	14:40	2	548	
	14:42	1	549	
	14:46	4	550	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/28/75	14:50	4	551	
	14:56	6	552	
	15:00	4	553	
	15:03	3	554	
	15:05	2	555	
	15:07	2	556	
	15:09	2	557	
	15:14	5	558	
	15:17	3	559	
	15:20	3	560	
	15:23	3	561	
	15:26	3	562	
	15:30	4	563	
	15:34	4	564	
	15:36	2	565	
	15:39	3	566	
	15:41	3	567	
	15:43	2	568	
	15:45	2	569	
	15:50	2	570	conn.
	15:53	3	571	
	15:57	4	572	
	16:01	4	573	
	16:07	6	574	
	16:10	3	575	
	16:12	2	576	
	16:14	2	577	
	16:16	2	578	
	16:20	4	579	
	16:24	4	580	
6/28/75	16:26	2	581	
	16:28	2	582	
	16:30	2	583	
	16:35	5	584	
	16:38	3	585	
	16:43	5	586	
	16:47	4	587	
	16:51	4	588	
	16:53	2	589	
	16:55	2	590	
	17:00	5	591	
	17:02	2	592	
	17:05	3	593	
	17:07	2	594	
	17:10	3	595	
	17:13	3	596	
	17:16	3	597	
	17:19	3	598	
	17:23	4	599	
	17:26	3	600	
	17:38	3	601	
	17:42	4	602	
	17:46	4	603	
	17:49	3	604	
	17:53	4	605	
	17:57	4	606	
	18:01	4	607	
	18:05	4	608	
	18:09	4	609	
	18:12	3	610	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/28/75	18:18	6	611	
	18:22	4	612	
	18:27	5	613	
	18:30	3	614	
	18:33	3	615	
	18:36	3	616	
	18:38	2	617	
	18:41	3	618	
	18:45	4	619	
	18:48	3	620	
	18:50	2	621	
	18:51	1	622	
	18:54	3	623	
	18:56	2	624	
	18:59	3	625	
	19:02	3	626	
	19:05	3	627	
	19:08	3	628	
	19:12	4	629	
	19:14	2	630	
6/29/75	08:43	2	631	
	08:47	4	632	
	08:52	5	633	
	08:55	3	634	
	08:59	4	635	
	09:03	4	636	
	09:05	2	637	
	09:10	5	638	
	09:15	5	639	
	09:20	5	640	
6/29/75	09:25	5	641	
	09:32	7	642	
	09:38	6	643	
	09:43	5	644	
	09:48	5	645	
	09:52	4	646	
	09:58	6	647	
	10:02	4	648	
	10:07	5	649	
	10:12	5	650	
	10:16	4	651	
	10:19	3	652	
	10:21	2	653	
	10:23	2	654	
	10:24	1	655	
	10:26	2	656	
	10:28	2	657	
	10:31	3	658	conn.
	10:39	2	659	
	10:41	2	660	
	10:43	2	661	
	10:45	2	662	
	10:47	2	663	
	10:50	3	664	
	10:52	2	665	
	10:54	2	666	
	10:58	4	667	
	11:00	2	668	
	11:02	2	669	
	11:04	2	670	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks	Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/29/75	11:06	2	671		6/29/75	12:30	2	701	
	11:09	3	672			12:33	3	702	
	11:12	3	673			12:35	2	703	
	11:14	2	674			12:37	2	704	
	11:17	3	675			12:41	4	705	
	11:20	3	676			12:44	3	706	
	11:23	3	677			12:46	2	707	
	11:25	2	678			12:51	5	708	
	11:28	3	679			12:55	4	709	
	11:30	2	680			12:58	3	710	
	11:33	3	681			13:04	6	711	
	11:35	2	682			13:08	4	712	
	11:37	2	683			13:10	2	713	
	11:39	2	684			13:12	2	714	
	11:43	4	685			13:14	2	715	
	11:46	3	686			13:17	3	716	
	11:48	2	687			13:21	4	717	
	11:50	2	688			13:23	2	718	
	11:52	2	689	conn.		13:25	2	719	
	12:04	10	690			13:27	2	720	conn.
	12:06	2	691			13:38	3	721	
	12:08	2	692			13:41	3	722	
	12:10	2	693			13:44	3	723	
	12:12	2	694			13:47	3	724	
	12:14	2	695			13:50	3	725	
	12:17	3	696			14:11	3	726	
	12:20	3	697			14:15	4	727	
	12:23	3	698			14:21	6	728	
	12:25	2	699			14:24	3	729	
	12:28	3	700			14:27	3	730	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/29/75	14:29	2	731	
	14:35	6	732	
	14:42	7	733	
	14:49	7	734	
	14:56	7	735	
	14:59	3	736	
	15:02	3	737	
	15:05	3	738	
	15:09	4	739	
	15:13	4	740	
	15:17	4	741	
	15:20	3	742	
	15:23	3	743	
	15:26	3	744	
	15:29	3	745	
	15:31	2	746	
	15:35	4	747	
	15:37	2	748	
	15:39	2	749	
	15:41	2	750	conn.
	15:51	2	751	
	15:54	3	752	
	15:56	2	753	
	15:58	2	754	
	16:00	2	755	
	16:03	3	756	
	16:05	2	757	
	16:07	2	758	
	16:09	2	759	
	16:12	3	760	
6/29/75	16:15	3	761	
	16:18	3	762	
	16:22	4	763	
	16:26	4	764	
	16:29	3	765	
	16:32	3	766	
	16:35	3	767	
	16:41	6	768	
	16:45	4	769	
	16:47	2	770	
	16:49	2	771	
	16:52	3	772	
	16:55	3	773	
	16:59	4	774	
	17:01	2	775	
	17:03	2	776	
	17:06	3	777	
	17:10	4	778	
	17:13	3	779	
	17:17	4	780	
	17:21	4	781	
	17:25	4	782	
	17:28	3	783	conn.
	17:42	3	784	
	17:46	4	785	
	17:50	4	786	
	17:54	4	787	
	17:58	4	788	
	18:01	3	789	
	18:05	4	790	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks	Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
06/29/75	18:09	4	791		06/29/75	20:52	5	821	
	18:13	4	792			20:56	4	822	
	18:16	3	793			21:00	4	823	
	18:18	2	794			21:05	5	824	
	18:20	2	795			21:08	3	825	
	18:24	4	796			21:11	3	826	
	18:27	3	797			21:14	3	827	
	18:30	3	798			21:16	2	828	
	18:35	5	799			21:18	2	829	
	18:41	6	800			21:21	3	830	
	18:47	6	801			21:25	4	831	
	18:52	5	802			21:29	4	832	trip
	18:56	4	803		6/30/75	01:32	4	833	
	19:00	4	804			01:35	3	834	
	19:06	6	805			01:39	4	835	
	19:17	9	806			01:41	2	836	
	19:22	5	807			01:44	3	837	
	19:24	2	808			01:47	3	838	
	19:26	2	809			01:50	3	839	
	19:30	4	810			01:54	4	840	
	19:35	5	811			01:56	2	841	
	19:43	8	812			01:59	3	842	
	19:48	5	813			02:02	3	843	
	19:52	4	814			02:06	4	844	
	19:57	5	815	conn.		02:10	4	845	
	20:25	5	816			02:13	3	846	conn.
	20:32	7	817			02:30		847	
	20:38	6	818			02:32	2	848	
	20:42	4	819			02:34	2	849	
	20:47	5	820			02:36	2	850	

Date	Time (Hrs)	Minutes Per ft	Depth M-5 (ft)	Remarks
6/30/75	02:38	2	851	
	02:40	2	852	
	02:42	2	853	
	02:44	2	854	
	02:45	1	855	
	02:47	2	856	
	02:48	2	857	
	02:51	2	858	
	02:52	1	859	
	02:55	3	860	
	02:58	3	861	
	03:00	2	862	
	03:03	3	863	
	03:05	2	864	
	03:08	3	865	
	03:10	2	866	
	03:12	2	867	
	03:15	3	868	
	03:17	2	869	
	03:19	2	870	
	03:21	2	871	
	03:24	3	872	
	04:15	2	873	
	04:16	1	874	
	04:18	2	875	
	04:20	2	876	
	04:25	5	877	
	04:37	2	878	conn.
	04:40	3	879	
	04:45	5	880	
6/30/75	04:47	2	881	
	04:51	4	882	
	04:55	4	883	
	04:57	2	884	
	05:00	3	885	
	05:05	5	886	
	05:08	3	887	
	05:10	2	888	
	05:13	3	889	
	05:17	4	890	
	05:19	2	891	
	05:20	1	892	
	05:24	4	893	
	05:27	3	894	
	05:30	3	895	
	05:35	5	896	
	05:37	2	897	
	05:40	3	898	
	05:43	3	899	
	05:45	2	900	
	05:49	4	901	
	05:53	4	902	
	05:57	4	903	
	06:00	3	904	
	06:04	4	905	
	06:08	4	906	
	06:11	3	907	

RIO BLANCO OIL SHALE PROJECT
PROGRESS REPORT 4

HYDROLOGIC PROGRAM
SECTION 1.2

RAW DATA

October 15, 1975

Gulf Oil Corporation
and
Standard Oil Company (Indiana)

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SURFACE WATER DATA COLLECTION

SECTION 1.2.2

U.S.G.S. Rain Gage Data

[illegible]

Explanation - - U.S.G.S. Rain Gage Data

Storage Type Rain Gage Stations

- Dry Fork Gulch Station
- Box Elder Gulch West of Tract C-a Station
- Corral Gulch West of Tract C-a Station

Recording Type Rain Gage Stations

- Corral Gulch near Cathedral Bluffs Station
- Stake Spring Draw Station
- Yellow Creek near White River Station

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. Washington ....
District ....

STATION: Dry Fork Gulch YEAR:

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1												
2												
3												
4												
5												
6							0.00 E					
7												
8			0.27									
9												
10												
11												
12												
13	1.25	*			1.42							
14						0.58	*					
15				0.41								
16												
17			*									
18												
19												
20							0.52					
21												
22												
23												
24						*						
25												
26												
27												
28							*					
29		X		*	*							
30		X										
31		X				X						
SUM												

E = reading effected by Construction

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington ....
District ....

STATION: Dry Fork Gulch

YEAR: 1974

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
[illegible]												

RBOSP PROGRESS REPORT

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. Washington ....
District ....

STATION: Box Elder Gulch YEAR: 1975

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	↑	↑	↑	↑	↑	↑	✳					
2												
3												
4												
5												
6		1.05					0.02" E					
7												
8			0.68									
9												
10												
11	0.25											
12												
13		✳			0.76							
14							✳					
15						0.60	0.21					
16				2.04			✳					
17			✳									
18												
19												
20												
21							0.13					
22												
23												
24	✳											
25												
26						✳						
27						0.00						
28		↓			✳		↓					
29		x		✳								
30		x		↓		↓						
31	↓	x	↓		↓	x						
Sum												

E = reading effected by evaporation

RBOSP PROGRESS REPORT

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. Washington ....
District ....

STATION: Box Elder Gulch YEAR: 1974

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
SUM												

RDOSP PROGRESS REPORT

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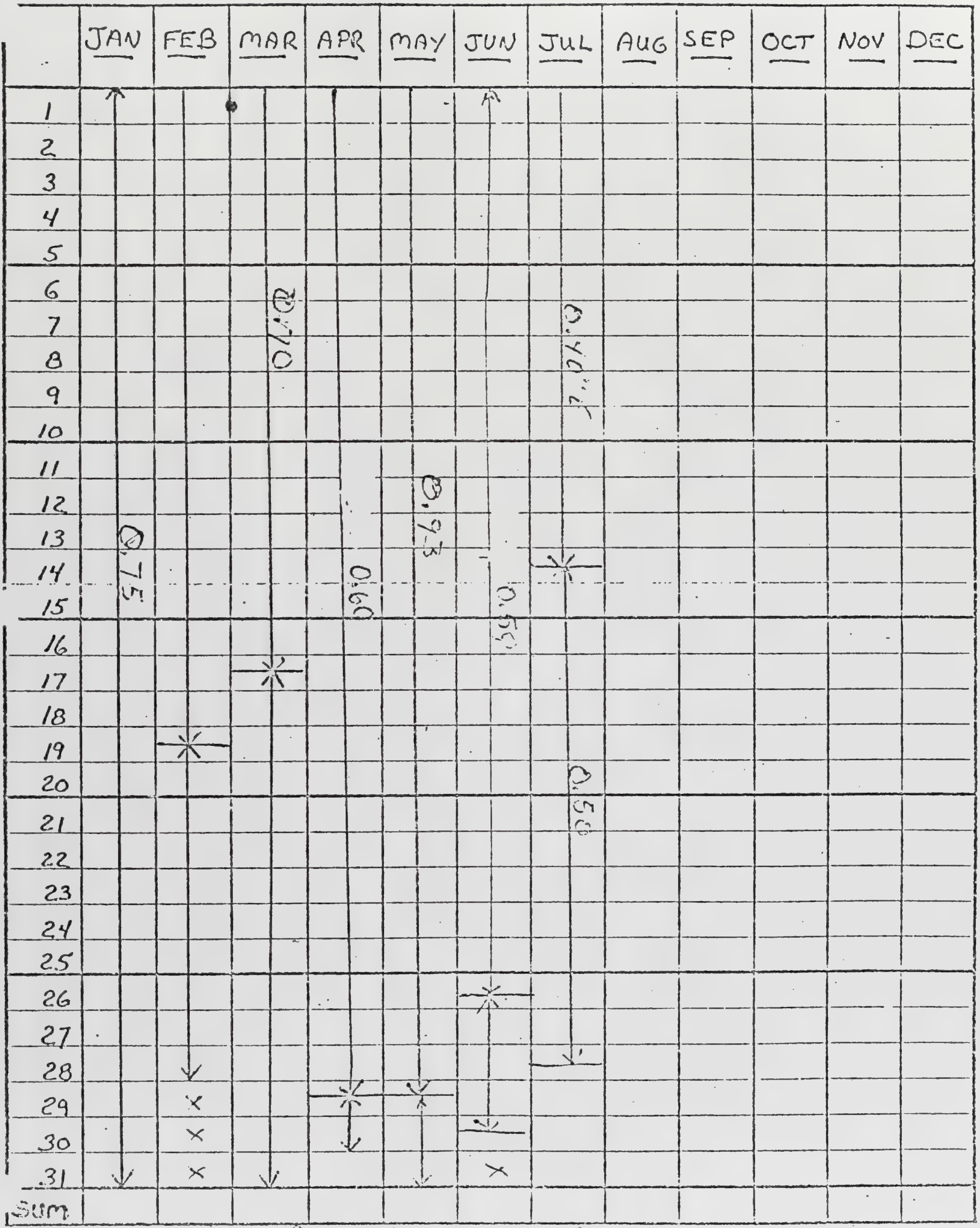
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY [illegible]

File No. { Washington ....
District 3

STATION: Corral Gulch below Water Gulch YEAR: 1975



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1												
2												
3												
4												
5												
6												
7			Ⓔ.70				Ⓔ.40					
8												
9												
10												
11												
12					Ⓔ.93							
13												
14	Ⓔ.75			0.60			*					
15						0.55						
16												
17			*									
18												
19		*										
20							Ⓔ.50					
21												
22												
23												
24												
25												
26						*						
27												
28												
29		x		*	*							
30		x										
31		x				x						
Sum												

E = reading effected by evaporation

9-230

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington ....
District ....

STATION: Corral below Water Gulch YEAR: 1974

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
SUM												

REOSP PROGRESS REPORT

9-230

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. Washington ....
District ....

STATION: CORRAL GULCH NR CATHEDRAL BLUFFS YEAR: 75

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				.65								
2												
3												
4				NO								
5		0.32			0.83							
6	0.01		.07	record								
7	0.10		.05			NO RECORD						
8	0.10											
9	0.15	0.07	.11									
10	0.02	0.04	.50									
11	0.05		.20									
12												
13		0.01										
14		0.26	[illegible]									
15												
16		0.06	.36									
17		0.12	.21	0.19								
18				0.40								
19												
20												
21	0.12				0.01							
22			.38		0.01							
23			.12									
24												
25			.11									
26			.17									
27	0.07		.07	0.24								
28	0.40			0.17	0.10							
29	0.01				0.37							
30	0.38											
31	0.02		.12									
SUM	1.43	0.88	2.87	1.65*								

* Incomplete record

RBOSP PROGRESS REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington .... District ....

TATION: STAKE SPRINGS DRAW YEAR: 75

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		0.01		0.56								
2							0.06					
3						0.04						
4						0.04	0.27					
5		0.08			0.37							
6			0.07									
7	0.10			0.20		0.59						
8	0.07					0.10						
9	0.08		0.17									
10			0.38									
11			0.16									
12												
13												
14		0.19	0.02									
15		0.02										
16		0.08	0.01	0.20								
17		↑	0.16	0.23								
18		|		↑	0.02	0.07						
19		|		0.00								
20		|		⋮	0.51	0.17						
21	0.09	0.08	0.04	↓	0.11							
22		|	0.18		0.21							
23		|	0.01									
24		↓										
25			0.02									
26			0.25									
27	0.01		0.13	0.15	0.17							
28	0.31				0.60							
29					0.14							
30	0.27											
31	0.02	0.46	0.50									
Sums	0.95	0.92	2.10	1.34	2.13	1.01						

RBOSP PROGRESS REPORT

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DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington ....
District ....

STATION: YELLOW CREEK @ MOUTH YEAR: 75

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		0.83		0.29								
2							0.04					
3		↓				0.10	0.19					
4		↑				0.02						
5			0.06		0.36							
6			0.05									
7	0.12			0.15		0.28						
8	0.21					0.23						
9	0.05		T									
10			0.25									
11			0.22									
12												
13		0.65										
14												
15												
16												
17			0.06	0.30								
18					0.17	0.07						
19												
20					0.19	0.27						
21	0.03		0.09		0.43							
22			0.05		0.04							
23												
24		↓										
25			0.02									
26			0.01									
27				0.06	0.13							
28	↑				0.30							
29		X			0.10							
30		X										
31		X	0.29									
Sum			1.17	0.40	1.67	0.97						

RBOSP PROGRESS REPORT

ALLUVIAL AQUIFERS

SECTION 1.2.3

Wet Chemical and Spectrographic Analyses, Alluvial Test Holes

RECOP PROGRESS REPORT

EXPLANATION -- WATER QUALITY COMPUTER OUTPUT SHEETS

1. Core Hole Description Data

Job # 741-40-

Assigned project number for Rio Blanco Oil Shale Project by Wright Water Engineers, Inc.

Location

X = Coordinates east in feet, 7200 foot

Datum of the Colorado State Coordinate System

Y = Coordinates, north in feet, 7200 foot

Datum of the Colorado State Coordinate System

Z = Elevation in feet above sea of the core hole at ground surface

Date Drill Compl.-

The date when drilling was completed on the Core Hole.

Conv. to Monitor-

Date the Core Hole was converted to a Monitor Hole.

Aquifer 1:

Depth in feet to the top and bottom of the upper aquifer from ground surface.

Aquifer 2:

Depth in feet to the top and bottom of the lower aquifer from ground surface.

2. Sample Description Data

Date-

Date water sample was collected.

Depth-

Depth for Method 1: Total depth sample was collected during drilling.

Depth for Method 2: See aquifer 1 or 2.

Depth for Method 3: The static water level of the hole when sampled.

Temp.-

Field temperature of sample (^{O}F)

Lab ID-

Designation number assigned by the analyzing laboratory.

Method

0. Drilling soap sample
1. Drilling program sample
2. Pumping test program sample
3. Monitoring program sample
3A. Monitoring program sample, not representative of aquifer conditions

Aquif. Loc.

U Sample from upper aquifer during drilling, pumping or monitoring
L Sample from lower aquifer during pumping test or monitoring
C Sample combination of upper and lower aquifer during drilling
A Sample from alluvial aquifer

3. Wet -- Wet Chemical Analysis

Values are in milligrams per liter, except for:

Gross Alpha-- picocuries per liter
Gross Beta -- picocuries per liter
pH -- standard pH values
Conductance-- micromhos per centimeter
Negative values indicate less than minimum detectable limit indicated
0.0 value - constituent not tested for
**** - not analyzed for using wet chemical analysis

4. Spectrographic - spectrographic analysis of 67 elements

All values are in milligrams per liter
0.0 means less than minimum detectable amount
99999.000 means major amount
***** is used in Water Quality Analysis Summary to indicate an element has not been analyzed above the minimum detectable limit

```
JOB#-741-40F       OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X-      0.0  Y-      0.0  Z-      0.0
DATE DRILL COMPL-120475  DATE CONV TO MONITOR-      0  AQUIFER 1:     0.0 -    0.0 FT  AQUIFER 2:     0.0 -    0.0 FT


SAMPLES              1          2          3          4          5          6          7          8          9

DATE             33175      41575      42975      51475      52975      61175      63075      71575      80575
DEPTH              0.0      20.70      21.04      21.74      21.85      22.10      22.36      24.88      25.46
TEMP              47.3       47.1       49.1       47.8       49.3       49.6       52.3       50.0       50.0
LAB ID
LAB NUM           9023        184        185        436        437        898       2260       1542       2048
METHOD               3          3          3          3          3          3          3          3          3
AQUIF.LOC.           A          A          A          A          A          A          A          A          A

WET

ALUMINUM      -0.100      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
AMMONIA        0.0        0.400     -0.100      0.200      0.200      0.400      0.0        0.300     -0.100
ARSENIC       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010      0.010     -0.010
BICARBONAT   480.000    490.000    455.000    460.000    410.000    430.000    435.000    445.000    470.000
CADMIUM       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
CALCIUM       77.000     90.000     84.000     80.000    120.000     98.000    130.000     98.000     90.000
CARBONATE     -0.100     -0.100     -0.100     -0.100     24.000     -0.100     -0.100     -0.100     -0.100
CHLORIDE      12.000     14.000      9.600     17.000      7.000     14.000      6.800      6.900      8.200
CHROMIUM      -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
COPPER        -0.010      0.100     -0.100     -0.100     -0.100      0.100     -0.100     -0.100      0.100
FLUORIDE       0.200      0.400      0.400      0.400      0.400      0.400      0.200      0.400      0.600
HYDROXIDE      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON          -0.050      4.800      0.300      9.100     15.000      8.300      0.300     12.000      9.500
LEAD           0.020      0.100      0.070      0.500      0.200      0.100      0.100      0.040      0.090
MAGNESIUM     45.000     47.000     35.000     56.000      7.300     52.000     29.000     57.000     59.000
MERCURY       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.002     -0.002     -0.002
NITRATE        3.900      4.800      5.200      4.700      0.200      4.500      3.900      3.900      4.900
PHOSPHATE     -0.100     -0.100     -0.100     -0.100     -0.010     -0.100     -0.100     -0.100     -0.100
POTASSIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM      -0.010     -0.010     -0.010     -0.100     -0.010     -0.010     -0.010     -0.010     -0.010
SIL DIOXID    27.000     23.000     22.000     26.000     28.000     26.000     27.000     30.000     29.000
SODIUM       160.000    145.000    155.000     75.000    190.000    100.000    115.000     90.000    145.000
SULFATE      280.000    275.000    270.000    150.000    300.000    250.000    280.000    250.000    330.000
SULFIDE        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC           0.010      0.200     -0.100      0.200      0.300      0.300      0.300      0.600      0.200
GROS ALPHA     0.0        6.300      7.400      5.600      5.000      6.000      0.0        4.100      0.0
GROSS BETA     0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HARDNESS     375.000    420.000    355.000    430.000    330.000    460.000    450.000    480.000    470.000
PH             6.400      6.400      6.400      6.800      6.100      6.000      6.800      6.800      6.800
CONDUCTANC   990.000   1120.000   1050.000   1120.000   1065.000   1140.000   1440.000   1104.000   1056.000
DIS SOLIDS   840.000    840.000    810.000    640.000    890.000    760.000    800.000    765.000    905.000
MANGANESE     -0.050     -0.050      1.900      0.100      0.400      0.500      0.100      0.200      1.000
ALKALINITY   395.000    400.000    375.000    395.100    360.000    350.000    355.000    365.000    385.000
CYANIDE       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
BORON          1.100      2.900      1.900     -0.010     -0.010      0.100      0.070     -0.010      0.020
BARIUM        -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000
SILVER        -0.010     -0.010     -0.010     -0.010     -0.010      0.010     -0.100     -0.010     -0.010
NICKEL         0.030      0.040      0.020      0.020      0.040      0.060      0.010      0.030      0.030
LITHIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TOC            0.0       19.000      9.000     14.000     15.000     35.000      0.0        0.0        0.0
```

RBOSP PROGRESS REPORT

```
SAMPLES            1          2          3          4          5          6          7          8          9


SPECTROGRAPHIC

ALUMINUM         0.100      0.500      0.100      0.050      0.0        0.0        0.0        0.0        0.0
ANTIMONY         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ARSENIC          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BARIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BERYLIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BISMUTH          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BORON            0.200      0.500      0.200      0.500      0.0        0.0        0.0        0.0        0.0
CADMIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CALCIUM      99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0        0.0
CERIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CESIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CHROMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COBOLT           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COLUMBIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COPPER           0.001      0.010      0.001      0.001      0.0        0.0        0.0        0.0        0.0
DYSPROSIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ERBIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
EUROPIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GADOLINIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GALLIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GERMANIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GOLD             0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HAFNIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HOLMIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
INDIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRIDIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON             0.020      0.050      0.050      0.010      0.0        0.0        0.0        0.0        0.0
LANTHANUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LEAD             0.0        0.0        0.001      0.0        0.0        0.0        0.0        0.0        0.0
LITHIUM          0.010      0.001      0.001      0.0        0.0        0.0        0.0        0.0        0.0
LUTETIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MAGNESIUM    99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0        0.0
MANGANESE        0.010      0.005      0.010      0.001      0.0        0.0        0.0        0.0        0.0
MERCURY          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MOLYBDENUM       0.050      0.0        0.005      0.001      0.0        0.0        0.0        0.0        0.0
NEODYMIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
NICKEL           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
OSMIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PALLADIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PLATINUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
POTASSIUM        0.100      1.000      2.000      0.100      0.0        0.0        0.0        0.0        0.0
PRASEODYMI       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RADIUM           0.100      0.100      0.0        0.0        0.100      0.300      0.0        0.0        0.0
RHENIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHODIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUBIDIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUTHENIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SAMARIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SCANDIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SILICON         20.000      5.000      5.000      2.000      0.0        0.0        0.0        0.0        0.0
SILVER           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SODIUM       99999.000      5.000     10.000      2.000      0.0        0.0        0.0        0.0        0.0
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RBOSP PROGRESS REPORT

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID S-7

SAMPLES	1	2	3	4	5	6	7	8	9
STRONTIUM	0.100	0.100	0.100	0.100	0.0	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.001	0.0	0.001	0.010	0.0	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.0	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RBOSP PROGRESS REPORT

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JOB#-741-40F       OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X-      0.0  Y-      0.0  Z-      0.0
DATE DRILL COMPL-120475  DATE CONV TO MONITOR-     0  AQUIFER 1:     0.0 -    0.0 FT  AQUIFER 2:    0.0 -    0.0 FT


SAMPLES             1         2         3         4         5         6         7         8         9

DATE            32975     41575     42975     51475     52975     61175     63075     71575     80575
DEPTH           37.14     39.06     38.92     37.88     30.72     29.00     24.95     29.82     31.31
TEMP             46.2      47.8      57.2      50.5      49.6      51.8      52.0      51.4      50.6
LAB ID
LAB NUM          9024       186       187       438       439       899      2261      1543      2049
METHOD              3         3         3         3         3         3         3         3         3
AQUIF.LOC.          A         A         A         A         A         A         A         A         A

WET

ALUMINUM       -0.100    0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
AMMONIA         1.000    0.600     0.200     0.900     0.200     0.400     0.0       0.200    -0.100
ARSENIC        -0.010   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
BICARBONAT    495.000  510.000   510.000   440.000   370.000   380.000   435.000   450.000   460.000
CADMIUM        -0.010   -0.010    -0.010     0.030     0.010     0.010     0.040     0.020    -0.010
CALCIUM        64.000   90.000    60.000    85.000    85.000   110.000    80.000    88.000    77.000
CARBONATE      -0.100   -0.100    -0.100    15.000    36.000    27.000    -0.100    -0.100    -0.100
CHLORIDE        8.300   14.000    11.000    14.000    14.000    14.000     8.200    34.000     9.500
CHROMIUM       -0.010   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
COPPER         -0.010   -0.100    -0.100    -0.010    -0.100     0.100    -0.100    -0.100     0.300
FLUORIDE        0.300    0.400     0.0       0.400     0.300     0.300     0.200     0.400     0.600
HYDROXIDE       0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
IRON           -0.050   -0.050     3.100     9.200    28.000     6.500     8.300    15.800     3.100
LEAD            0.040    0.070     0.200     0.200     0.300     0.200     0.060     0.070     0.200
MAGNESIUM      40.000   26.000    35.000    16.000    31.000    35.000    60.000    52.000    56.000
MERCURY        -0.010   -0.010    -0.010    -0.010    -0.010    -0.010    -0.002    -0.002    -0.002
NITRATE         1.000    5.100     3.400     5.000     0.100     4.200     4.900     3.400     3.300
PHOSPHATE      -0.100   -0.100    -0.100    -0.100    -0.100    -0.100     0.100    -0.100    -0.100
POTASSIUM       0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SELENIUM       -0.010   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
SIL DIOXID     33.000   25.000    27.000    29.000    27.000    27.000    32.000    31.000    27.000
SODIUM        160.000  160.000   175.000   190.000   140.000   100.000    80.000   110.000   110.000
SULFATE       215.000  205.000   145.000   220.000   220.000   190.000   195.000   200.000   230.000
SULFIDE         0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ZINC            0.010    0.100     0.400     0.300     0.600     0.200     0.200     0.800     0.200
GROS ALPHA      0.0     13.000     2.800     4.700     4.900     1.400     0.0       2.500     0.0
GROSS BETA      0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
HARDNESS      325.000  330.000   290.000   280.000   340.000   420.000   445.000   430.000   425.000
PH              6.500    6.400     6.400     6.700     6.000     6.200     7.000     6.800     6.600
CONDUCTANC    860.000 1045.000   930.000  1000.000   980.000  1150.000  1150.000  1020.000   943.400
DIS SOLIDS    760.000  770.000   760.000   800.000   760.000   700.000   680.000   755.000   740.000
MANGANESE       0.120    1.900     1.300     2.500     1.500     1.000     0.300     5.000     0.080
ALKALINITY    405.000  420.000   420.000   372.000   329.000   332.000   355.000   370.000   375.000
CYANIDE        -0.010   -0.010    -0.010    -0.010    -0.010    -0.010     0.010    -0.010    -0.010
BORON           1.500    2.400     3.000    -0.010     0.300     0.030     3.500    -0.010     2.000
BARIUM         -1.000   -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000
SILVER         -0.010   -0.010    -0.010    -0.010    -0.010     0.010     0.010    -0.010    -0.010
NICKEL          0.050    0.080     0.060     0.060     0.060     0.070     0.010     0.090     0.010
LITHIUM         0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
TOC             0.0     41.000   100.000     7.000     8.000    15.000     0.0       0.0       0.0
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RBOSP PROGRESS REPORT

SAMPLES	1	2	3	4	5	6	7	8	9
SPECTROGRAPHIC									
ALUMINUM	0.100	0.200	0.100	0.0	0.0	0.0	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	0.100	0.500	0.200	0.0	0.0	0.0	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBOLT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.001	0.010	0.001	0.0	0.0	0.0	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.050	0.050	0.020	0.0	0.0	0.0	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LITHIUM	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0
MANGANESE	0.010	0.010	0.001	0.0	0.0	0.0	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.010	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	0.500	1.000	1.000	0.0	0.0	0.0	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.0	0.100	0.0	0.0	0.100	0.0	0.0	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	10.000	5.000	5.000	0.0	0.0	0.0	0.0	0.0	0.0
SILVER	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	99999.000	5.000	5.000	0.0	0.0	0.0	0.0	0.0	0.0

RBOSP PROGRESS REPORT

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09/26/75                                WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID S-8                                    PAGE

SAMPLES           1          2          3          4          5          6          7          8          9

STRONTIUM      0.0        0.100      0.100      0.0        0.0        0.0        0.0        0.0        0.0
TANTALUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TERBIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THALLIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THORIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THULIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TIN            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TITANIUM       0.010      0.001      0.001      0.0        0.0        0.0        0.0        0.0        0.0
TUNGSTEN       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
URANIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
VANADIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
YTTERBIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
YTTRIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC           0.0        0.001      0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZIRCONIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
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JOB#-741-40F         OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X-      0.0  Y-      0.0  Z-      0.0
DATE DRILL COMPL-120575  DATE CONV TO MONITOR-      0  AQUIFER 1:     0.0 -    0.0 FT  AQUIFER 2:     0.0 -    0.0 FT


SAMPLES            1          2          3          4          5          6          7          8          9

DATE           32975      41575      42975      51475      52975      61175      63075      71575      80575
DEPTH            0.0      48.38      47.41      46.05      44.41      42.60      40.47      44.20      45.05
TEMP            48.2       47.9       50.0       51.8       56.3       51.8       53.6       56.8       52.2
LAB ID
LAB NUM         9025        235        236        440        441        900       2262       1544       2050
METHOD             3          3          3          3          3          3          3          3          3
AQUIF.LOC.         A          A          A          A          A          A          A          A          A

WET

ALUMINUM      -0.100      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
AMMONIA       -0.100      0.200      0.400      0.600      0.300      0.400      0.0        0.500      0.300
ARSENIC       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
BICARBONAT   675.000    650.000    680.000    660.000    630.000    570.000    615.000    650.000    650.000
CADMIUM       -0.010      0.010     -0.010      0.020      0.030      0.070      0.020      0.090     -0.010
CALCIUM       77.000    190.000    140.000    170.000    210.000    150.000    160.000    125.000    135.000
CARBONATE     -0.100     -0.100     -0.100     18.000      6.000     24.000     -0.100     -0.100     -0.100
CHLORIDE      19.000     19.000     23.000     27.000     21.000     27.000     12.000     30.000     14.000
CHROMIUM      -0.010     -0.050     -0.050     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
COPPER        -0.010     -0.100      0.100     -0.100     -0.100      0.100     -0.100     -0.100     -0.100
FLUORIDE       0.200      0.300      0.200     -0.100      0.200      0.200      0.100      0.200      0.600
HYDROXIDE      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON          -0.050      6.300      6.300      4.300      5.000      6.000     15.000      8.800      7.700
LEAD           0.040      0.200      0.300      0.300      0.400      0.100      0.100      0.700      0.080
MAGNESIUM    115.000     67.000     90.000     35.000      3.700     84.000     81.000     95.000    105.000
MERCURY       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010      0.002     -0.002     -0.002
NITRATE        1.600      0.300      4.000     12.000     13.000     19.000     17.000     20.000     21.000
PHOSPHATE     -0.100      0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100
POTASSIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM      -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
SIL DIOXID    40.000     32.000     33.000     34.000     37.000     36.000     37.000     41.000     39.000
SODIUM       255.000    210.000    240.000    300.000    290.000    260.000    270.000    230.000    290.000
SULFATE      570.000    580.000    580.000    540.000    540.000    600.000    650.000    550.000    720.000
SULFIDE        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC           0.030      0.300      0.100      0.400      0.500      3.200      1.300      1.400      0.200
GROS ALPHA     0.0       15.000     15.000     11.000     17.000      7.600      0.0       14.000      0.0
GROSS BETA     0.0        0.0        0.0        0.0        0.0        0.0        0.0       12.000      0.0
HARDNESS     670.000    750.000    720.000    570.000    540.000    720.000    730.000    700.000    765.000
PH             6.400      6.400      6.400      6.800      6.100      6.200      7.000      7.200      7.200
CONDUCTANC  1880.000   1930.000   1875.000   1860.000   1940.000   2070.000   2220.000   1764.000   2252.000
DIS SOLIDS  1410.000   1420.000   1420.000   1460.000   1430.000   1490.000   1540.000   1420.000   1640.000
MANGANESE      0.330      1.000      1.200      1.700      3.500      2.800      4.000      4.500      5.800
ALKALINITY   555.000    530.000    560.000    555.000    525.000    490.000    505.000    535.000    530.000
CYANIDE       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010      0.010     -0.010     -0.010
BORON          0.400      3.700      4.200     27.000      0.200      0.070      0.400      0.500      1.900
BARIUM        -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000
SILVER        -0.010     -0.010     -0.010     -0.010     -0.010      0.070     -0.010     -0.010     -0.010
NICKEL         0.020      0.040      0.030      0.050      0.080      0.100      0.040      0.100      0.060
LITHIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TOC            0.0       63.000     32.000     32.000     32.000     34.000      0.0        0.0        0.0
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RBOSP PROGRESS REPORT

SAMPLES	1	2	3	4	5	6	7	8	9
SPECTROGRAPHIC									
ALUMINUM	0.200	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBOLT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANGANESE	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.050	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.500	0.700	0.200	0.100	0.400	0.400	0.0	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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09/26/75                          WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID S-11

SAMPLES          1        2        3        4        5        6        7        8        9

STRONTIUM      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TANTALUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TERBIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THALLIUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THORIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THULIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TIN            0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TITANIUM       0.010    0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TUNGSTEN       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
URANIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
VANADIUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
YTTERBIUM      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
YTTRIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
ZINC           0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
ZIRCONIUM      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
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RBOSP PROGRESS REPORT

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JOB#-741-40F       OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X-      0.0  Y-      0.0  Z-      0.0
DATE DRILL COMPL-120575  DATE CONV TO MONITOR-      0  AQUIFER 1:     0.0 -    0.0 FT  AQUIFER 2:     0.0 -    0.0 FT


SAMPLES              1         2         3         4         5         6         7         8         9

DATE             33175     41575     42975     51475     52975     61175     63075     71575     80575
DEPTH              0.0     32.28     32.25     31.98     34.50     34.60     32.04     35.39     35.41
TEMP              45.5      46.9      48.2      51.1      48.6      55.8      55.4      56.3      50.6
LAB ID
LAB NUM           9026       237       238       442       443       901      2263      1545      2051
METHOD               3         3         3         3         3         3         3         3         3
AQUIF.LOC.           A         A         A         A         A         A         A         A         A

WET

ALUMINUM        -0.100     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
AMMONIA          0.500     0.200     0.200     0.200     0.200     0.400     0.0       0.200    -0.100
ARSENIC         -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
BICARBONAT     700.000   710.000   620.000   550.000   620.000   570.000   680.000   695.000   750.000
CADMIUM         -0.010    -0.010    -0.010     0.010     0.010     0.010    -0.010     0.030    -0.010
CALCIUM         28.000   110.000    87.000    81.000   110.000   100.000   125.000   100.000    98.000
CARBONATE       -0.100    -0.100    -0.100    54.000    30.000    36.000    -0.100    -0.100    -0.100
CHLORIDE        22.000    16.000    71.000    21.000    21.000    34.000    20.000    25.000    18.000
CHROMIUM        -0.010    -0.050    -0.050    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
COPPER          -0.010    -0.100    -0.100    -0.100    -0.010     0.100     0.100    -0.100    -0.100
FLUORIDE         0.300     0.400     0.300     0.400     0.400     0.300     0.300     0.400     0.400
HYDROXIDE        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
IRON            -0.050     8.000     8.000    22.000     8.800     7.800    16.000     2.600     5.300
LEAD             0.040     0.100     0.050     0.700     0.400     0.300     0.600     0.700     0.020
MAGNESIUM      120.000    96.000    98.000    95.000   874.000    95.000    92.000   110.000   120.000
MERCURY         -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.002    -0.002    -0.002
NITRATE          2.500     2.900     2.300     4.200     2.500     3.000     3.300     2.700     3.600
PHOSPHATE       -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100     0.200    -0.100
POTASSIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SELENIUM        -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
SIL DIOXID      37.000    35.000    32.000    33.000    34.000    33.000    40.000    38.000    34.000
SODIUM         265.000   230.000   230.000   210.000   210.000   230.000   220.000   165.000   240.000
SULFATE        450.000   480.000   450.000   420.000   410.000   500.000   500.000   390.000   580.000
SULFIDE          0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ZINC             0.040     0.200     0.030     0.300     0.0       0.500     0.700     1.600     0.100
GROS ALPHA       0.0      14.000    11.000     7.800     9.000     7.600     0.0      13.000     0.0
GROSS BETA       0.0       0.0       0.0       0.0       0.0       0.0       0.0       1.000     0.0
HARDNESS       550.000   670.000   620.000   590.000   620.000   640.000   685.000   690.000   730.000
PH               6.400     6.600     6.800     6.800     6.200     6.400     6.800     6.900     6.800
CONDUCTANC    1511.000  1700.000  1550.000  1650.000  1650.000  1710.000  2090.000  1778.000  1525.000
DIS SOLIDS    1270.000  1260.000  1210.000  1190.000  1200.000  1320.000  1350.000  1170.000  1460.000
MANGANESE        0.090     6.400     0.100     2.900     0.500     2.100     3.500     7.500     2.600
ALKALINITY     570.000   580.000   510.000   494.000   535.000   499.000   555.000   570.000   615.000
CYANIDE         -0.010     0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
BORON            0.400     1.200     4.700     0.060    10.000     0.030     4.000     0.090     2.100
BARIUM          -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000
SILVER          -0.010    -0.010    -0.010    -0.010    -0.010     0.010     0.010    -0.010    -0.010
NICKEL           0.040     0.070     0.010     0.100     0.040     0.100     0.080     0.100     0.010
LITHIUM          0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
TOC              0.0      64.000    54.000    18.000    60.000    10.000     0.0       0.0       0.0
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RBOSP PROGRESS REPORT

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SAMPLES             1          2          3          4          5          6          7          8          9


SPECTROGRAPHIC

ALUMINUM        0.100      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ANTIMONY        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ARSENIC         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BARIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BERYLLIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BISMUTH         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BORON           0.100      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CADMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CALCIUM     99999.000      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CERIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CESIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CHROMIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COBOLT          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COLUMBIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COPPER          0.010      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
DYSPROSIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ERBIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
EUROPIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GADOLINIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GALLIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GERMANIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GOLD            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HAFNIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HOLMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
INDIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRIDIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON            0.050      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LANTHANUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LEAD            0.001      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LITHIUM         0.100      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LUTETIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MAGNESIUM   99999.000      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MANGANESE       0.010      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MERCURY         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MOLYBDENUM      0.010      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
NEODYMIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
NICKEL          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
OSMIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PALLADIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PLATINUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
POTASSIUM       0.100      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PRASEODYMI      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RADIUM          0.100      0.300      0.400      0.200      0.100      0.400      0.0        0.0        0.0
RHENIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHODIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUBIDIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUTHENIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SAMARIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SCANDIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SILICON        10.000      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SILVER          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SODIUM      99999.000      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
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WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID S-12

SAMPLES	1	2	3	4	5	6	7	8	9
STRONTIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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09/26/75                                  WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID S-19                                         PAGE  94

JOB#-741-40         OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X-       0.0  Y-       0.0  Z-       0.0
DATE DRILL COMPL- 62175  DATE CONV TO MONITOR- 62175  AQUIFER 1:     0.0 -    0.0 FT  AQUIFER 2:    0.0 -    0.0 FT


SAMPLES             1          2          3

DATE            63075      71575      80575
DEPTH           52.00      55.69      56.39
TEMP             53.8       55.4       53.6
LAB ID
LAB NUM          2264       1546       2052
METHOD              3          3          3
AQUIF.LOC.          A          A          A

WET

ALUMINUM        0.0        0.0        0.0
AMMONIA         0.0        0.300      0.300
ARSENIC        -0.010     -0.010     -0.010
BICARBONAT    600.000    530.000    610.000
CADMIUM         0.030     -0.010     -0.010
CALCIUM        88.000     98.000    140.000
CARBONATE      -0.100     -0.100     -0.100
CHLORIDE       16.000     23.000      8.200
CHROMIUM       -0.010     -0.010     -0.010
COPPER          0.100     -0.100     -0.100
FLUORIDE        0.100      0.300      0.600
HYDROXIDE       0.0        0.0        0.0
IRON           16.000     15.000      8.700
LEAD            0.700      0.100      0.060
MAGNESIUM     115.000    120.000     77.000
MERCURY        -0.002     -0.002     -0.002
NITRATE         6.800      5.000      7.000
PHOSPHATE      -0.100     -0.100     -0.100
POTASSIUM       0.0        0.0        0.0
SELENIUM       -0.010     -0.010     -0.010
SIL DIOXID     40.000     43.000     38.000
SODIUM        235.000    165.000    310.000
SULFATE       615.000    550.000    780.000
SULFIDE         0.0        0.0        0.0
ZINC            1.100      5.700      0.300
GROS ALPHA      0.0        5.000      0.0
GROSS BETA      0.0        8.000      0.0
HARDNESS      700.000    730.000    665.000
PH              6.800      6.900      6.800
CONDUCTANC   2000.000   1760.000   1615.000
DIS SOLIDS   1420.000   1280.000   1670.000
MANGANESE      12.000     14.000      0.090
ALKALINITY    490.000    435.000    500.000
CYANIDE        -0.010     -0.010     -0.010
BORON          -0.010      0.100      0.500
BARIUM         -1.000     -1.000     -1.000
SILVER          0.030     -0.010     -0.010
NICKEL          0.200      0.060      0.030
LITHIUM         0.0        0.0        0.0
TOC             0.0        0.0        0.0
```

RBOSP PROGRESS REPORT

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SAMPLES           1           2           3


SPECTROGRAPHIC

ALUMINUM        0.0         0.0         0.0
ANTIMONY        0.0         0.0         0.0
ARSENIC         0.0         0.0         0.0
BARIUM          0.0         0.0         0.0
BERYLIUM        0.0         0.0         0.0
BISMUTH         0.0         0.0         0.0
BORON           0.0         0.0         0.0
CADMIUM         0.0         0.0         0.0
CALCIUM         0.0         0.0         0.0
CERIUM          0.0         0.0         0.0
CESIUM          0.0         0.0         0.0
CHROMIUM        0.0         0.0         0.0
COBALT          0.0         0.0         0.0
COLUMBIUM       0.0         0.0         0.0
COPPER          0.0         0.0         0.0
DYSPROSIUM      0.0         0.0         0.0
ERBIUM          0.0         0.0         0.0
EUROPIUM        0.0         0.0         0.0
GADOLINIUM      0.0         0.0         0.0
GALLIUM         0.0         0.0         0.0
GERMANIUM       0.0         0.0         0.0
GOLD            0.0         0.0         0.0
HAFNIUM         0.0         0.0         0.0
HOLMIUM         0.0         0.0         0.0
INDIUM          0.0         0.0         0.0
IRIDIUM         0.0         0.0         0.0
IRON            0.0         0.0         0.0
LANTHANUM       0.0         0.0         0.0
LEAD            0.0         0.0         0.0
LITHIUM         0.0         0.0         0.0
LUTETIUM        0.0         0.0         0.0
MAGNESIUM       0.0         0.0         0.0
MANGANESE       0.0         0.0         0.0
MERCURY         0.0         0.0         0.0
MOLYBDENUM      0.0         0.0         0.0
NEODYMIUM       0.0         0.0         0.0
NICKEL          0.0         0.0         0.0
OSMIUM          0.0         0.0         0.0
PALLADIUM       0.0         0.0         0.0
PLATINUM        0.0         0.0         0.0
POTASSIUM       0.0         0.0         0.0
PRASEODYMI      0.0         0.0         0.0
RADIUM          0.0         0.0         0.0
RHENIUM         0.0         0.0         0.0
RHODIUM         0.0         0.0         0.0
RUBIDIUM        0.0         0.0         0.0
RUTHENIUM       0.0         0.0         0.0
SAMARIUM        0.0         0.0         0.0
SCANDIUM        0.0         0.0         0.0
SELENIUM        0.0         0.0         0.0
SILICON         0.0         0.0         0.0
SILVER          0.0         0.0         0.0
SODIUM          0.0         0.0         0.0
```

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SAMPLES            1           2           3

STRONTIUM        0.0         0.0         0.0
TANTALUM         0.0         0.0         0.0
TERBIUM          0.0         0.0         0.0
THALLIUM         0.0         0.0         0.0
THORIUM          0.0         0.0         0.0
THULIUM          0.0         0.0         0.0
TIN              0.0         0.0         0.0
TITANIUM         0.0         0.0         0.0
TUNGSTEN         0.0         0.0         0.0
URANIUM          0.0         0.0         0.0
VANADIUM         0.0         0.0         0.0
YTTERBIUM        0.0         0.0         0.0
YTTRIUM          0.0         0.0         0.0
ZINC             0.0         0.0         0.0
ZIRCONIUM        0.0         0.0         0.0
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09/26/75                                     WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID S-22                                        PAGE  7

JOB#-741-40          OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X-       0.0  Y-       0.0  Z-       0.0
DATE DRILL COMPL- 61975  DATE CONV TO MONITOR- 62075  AQUIFER 1:     0.0 -    0.0 FT  AQUIFER 2:     0.0 -    0.0 FT


SAMPLES              1          2          3

DATE             63075      71575      80575
DEPTH            65.49      67.36      68.00
TEMP              52.3       53.6       50.9
LAB ID
LAB NUM           2265       1547       2053
METHOD               3          3          3
AQUIF.LOC.           A          A          A

WET

ALUMINUM        0.0        0.0        0.0
AMMONIA         0.0        0.300     -0.100
ARSENIC        -0.010     -0.010     -0.010
BICARBONAT    660.000    695.000    690.000
CADMIUM        -0.010     -0.010     -0.010
CALCIUM        66.000     77.000     68.000
CARBONATE      -0.100     -0.100     -0.100
CHLORIDE       18.000     21.000     12.000
CHROMIUM       -0.010     -0.010     -0.010
COPPER         -0.100     -0.100      0.100
FLUORIDE        0.200      0.400      0.800
HYDROXIDE       0.0        0.0        0.0
IRON           16.000      8.300      4.900
LEAD            0.070      0.200      0.100
MAGNESIUM     135.000    125.000    140.000
MERCURY        -0.002     -0.002     -0.002
NITRATE         1.600      3.500      2.000
PHOSPHATE       0.100     -0.100     -0.100
POTASSIUM       0.0        0.0        0.0
SELENIUM       -0.010     -0.010     -0.010
SIL DIOXID     32.000     32.000     28.000
SODIUM        185.000    250.000    175.000
SULFATE       500.000    550.000    495.000
SULFIDE         0.0        0.0        0.0
ZINC            0.600      0.400      0.200
GROS ALPHA      0.0       14.000      0.0
GROSS BETA      0.0        0.0        0.0
HARDNESS      720.000    710.000    735.000
PH              6.800      7.200      6.800
CONDUCTANC   2230.000   1914.000   1740.000
DIS SOLIDS   1230.000   1410.000   1260.000
MANGANESE       1.300      0.600      0.100
ALKALINITY    540.000    570.000    565.000
CYANIDE        -0.010     -0.010     -0.010
BORON           2.600      0.300      0.400
BARIUM         -1.000     -1.000     -1.000
SILVER          0.010     -0.010     -0.010
NICKEL          0.030      0.050      0.020
LITHIUM         0.0        0.0        0.0
TOC             0.0        0.0        0.0
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RBOSP PROGRESS REPORT

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SAMPLES              1           2           3


SPECTROGRAPHIC

ALUMINUM        0.0         0.0         0.0
ANTIMONY        0.0         0.0         0.0
ARSENIC         0.0         0.0         0.0
BARIUM          0.0         0.0         0.0
BERYLIUM        0.0         0.0         0.0
BISMUTH         0.0         0.0         0.0
BORON           0.0         0.0         0.0
CADMIUM         0.0         0.0         0.0
CALCIUM         0.0         0.0         0.0
CERIUM          0.0         0.0         0.0
CESIUM          0.0         0.0         0.0
CHROMIUM        0.0         0.0         0.0
COBALT          0.0         0.0         0.0
COLUMBIUM       0.0         0.0         0.0
COPPER          0.0         0.0         0.0
DYSPROSIUM      0.0         0.0         0.0
ERBIUM          0.0         0.0         0.0
EUROPIUM        0.0         0.0         0.0
GADOLINIUM      0.0         0.0         0.0
GALLIUM         0.0         0.0         0.0
GERMANIUM       0.0         0.0         0.0
GOLD            0.0         0.0         0.0
HAFNIUM         0.0         0.0         0.0
HOLMIUM         0.0         0.0         0.0
INDIUM          0.0         0.0         0.0
IRIDIUM         0.0         0.0         0.0
IRON            0.0         0.0         0.0
LANTHANUM       0.0         0.0         0.0
LEAD            0.0         0.0         0.0
LITHIUM         0.0         0.0         0.0
LUTETIUM        0.0         0.0         0.0
MAGNESIUM       0.0         0.0         0.0
MANGANESE       0.0         0.0         0.0
MERCURY         0.0         0.0         0.0
MOLYBDENUM      0.0         0.0         0.0
NEODYMIUM       0.0         0.0         0.0
NICKEL          0.0         0.0         0.0
OSMIUM          0.0         0.0         0.0
PALLADIUM       0.0         0.0         0.0
PLATINUM        0.0         0.0         0.0
POTASSIUM       0.0         0.0         0.0
PRASEODYMI      0.0         0.0         0.0
RADIUM          0.0         0.0         0.0
RHENIUM         0.0         0.0         0.0
RHODIUM         0.0         0.0         0.0
RUBIDIUM        0.0         0.0         0.0
RUTHENIUM       0.0         0.0         0.0
SAMARIUM        0.0         0.0         0.0
SCANDIUM        0.0         0.0         0.0
SELENIUM        0.0         0.0         0.0
SILICON         0.0         0.0         0.0
SILVER          0.0         0.0         0.0
SODIUM          0.0         0.0         0.0
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SAMPLES          1          2          3

STRONTIUM       0.0        0.0        0.0
TANTALUM        0.0        0.0        0.0
TERBIUM         0.0        0.0        0.0
THALLIUM        0.0        0.0        0.0
THORIUM         0.0        0.0        0.0
THULIUM         0.0        0.0        0.0
TIN             0.0        0.0        0.0
TITANIUM        0.0        0.0        0.0
TUNGSTEN        0.0        0.0        0.0
URANIUM         0.0        0.0        0.0
VANADIUM        0.0        0.0        0.0
YTTERBIUM       0.0        0.0        0.0
YTTRIUM         0.0        0.0        0.0
ZINC            0.0        0.0        0.0
ZIRCONIUM       0.0        0.0        0.0
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NN-J23-0000

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JOB#-741-40        OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X-       0.0  Y-       0.0  Z-       0.0
DATE DRILL COMPL- 62075  DATE CONV TO MONITOR- 62075  AQUIFER 1:     0.0 -    0.0 FT  AQUIFER 2:     0.0 -    0.0 FT


SAMPLES              1          2          3

DATE             63075      71575      80575
DEPTH            28.50      30.44      30.75
TEMP              50.9       55.0       50.9
LAB ID
LAB NUM           2267       1548       2054
METHOD               3          3          3
AQUIF.LOC.           A          A          A

WET

ALUMINUM         0.0        0.0        0.0
AMMONIA          0.0        0.300     -0.100
ARSENIC         -0.010     -0.010     -0.010
BICARBONAT     600.000    525.000    590.000
CADMIUM         -0.010      0.010     -0.010
CALCIUM         96.000     84.000     84.000
CARBONATE       -0.100     -0.100     -0.100
CHLORIDE        11.000     22.000     12.000
CHROMIUM        -0.010     -0.010     -0.010
COPPER          -0.100     -0.100      0.300
FLUORIDE         0.100      0.400      0.400
HYDROXIDE        0.0        0.0        0.0
IRON             0.500     17.700      0.600
LEAD             0.040      0.040      0.300
MAGNESIUM      120.000    105.000    130.000
MERCURY         -0.002     -0.002     -0.002
NITRATE         -0.100      1.600      4.500
PHOSPHATE       -0.100     -0.100     -0.100
POTASSIUM        0.0        0.0        0.0
SELENIUM        -0.010     -0.010     -0.010
SIL DIOXID      32.000     44.000     34.000
SODIUM         160.000    220.000    150.000
SULFATE        510.000    550.000    510.000
SULFIDE          0.0        0.0        0.0
ZINC             0.400      2.600      0.100
GROS ALPHA       0.0       16.000      0.0
GROSS BETA       0.0        0.0        0.0
HARDNESS       730.000    650.000    750.000
PH               7.000      7.000      6.800
CONDUCTANC    2275.000   1920.000   1680.000
DIS SOLIDS    1220.000   1300.000   1210.000
MANGANESE        0.200     13.000      0.300
ALKALINITY     490.000    430.000    485.000
CYANIDE         -0.010     -0.010     -0.010
BORON            0.900      0.100      0.600
BARIUM          -1.000     -1.000     -1.000
SILVER          -0.010     -0.010     -0.010
NICKEL           0.010      0.030      0.020
LITHIUM          0.0        0.0        0.0
TOC              0.0        0.0        0.0
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RBOSP PROGRESS REPORT

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SAMPLES            1          2          3


SPECTROGRAPHIC

ALUMINUM        0.0        0.0        0.0
ANTIMONY        0.0        0.0        0.0
ARSENIC         0.0        0.0        0.0
BARIUM          0.0        0.0        0.0
BERYLIUM        0.0        0.0        0.0
BISMUTH         0.0        0.0        0.0
BORON           0.0        0.0        0.0
CADMIUM         0.0        0.0        0.0
CALCIUM         0.0        0.0        0.0
CERIUM          0.0        0.0        0.0
CESIUM          0.0        0.0        0.0
CHROMIUM        0.0        0.0        0.0
COBOLT          0.0        0.0        0.0
COLUMBIUM       0.0        0.0        0.0
COPPER          0.0        0.0        0.0
DYSPROSIUM      0.0        0.0        0.0
ERBIUM          0.0        0.0        0.0
EUROPIUM        0.0        0.0        0.0
GADOLINIUM      0.0        0.0        0.0
GALLIUM         0.0        0.0        0.0
GERMANIUM       0.0        0.0        0.0
GOLD            0.0        0.0        0.0
HAFNIUM         0.0        0.0        0.0
HOLMIUM         0.0        0.0        0.0
INDIUM          0.0        0.0        0.0
IRIDIUM         0.0        0.0        0.0
IRON            0.0        0.0        0.0
LANTHANUM       0.0        0.0        0.0
LEAD            0.0        0.0        0.0
LITHIUM         0.0        0.0        0.0
LUTETIUM        0.0        0.0        0.0
MAGNESIUM       0.0        0.0        0.0
MANGANESE       0.0        0.0        0.0
MERCURY         0.0        0.0        0.0
MOLYBDENUM      0.0        0.0        0.0
NEODYMIUM       0.0        0.0        0.0
NICKEL          0.0        0.0        0.0
OSMIUM          0.0        0.0        0.0
PALLADIUM       0.0        0.0        0.0
PLATINUM        0.0        0.0        0.0
POTASSIUM       0.0        0.0        0.0
PRASEODYMI      0.0        0.0        0.0
RADIUM          0.0        0.0        0.0
RHENIUM         0.0        0.0        0.0
RHODIUM         0.0        0.0        0.0
RUBIDIUM        0.0        0.0        0.0
RUTHENIUM       0.0        0.0        0.0
SAMARIUM        0.0        0.0        0.0
SCANDIUM        0.0        0.0        0.0
SELENIUM        0.0        0.0        0.0
SILICON         0.0        0.0        0.0
SILVER          0.0        0.0        0.0
SODIUM          0.0        0.0        0.0
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RBOSP PROGRESS REPORT

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09/26/75                    WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID S-23                    PAGE 105

SAMPLES             1           2           3

STRCNTIUM         0.0         0.0         0.0
TANTALUM          0.0         0.0         0.0
TEkBIUM           0.0         0.0         0.0
THALLIUM          0.0         0.0         0.0
THCR IUM          0.0         0.0         0.0
THUL IUM          0.0         0.0         0.0
TIN               0.0         0.0         0.0
TITANIUM          0.0         0.0         0.0
TUNGSTEN          0.0         0.0         0.0
URANIUM           0.0         0.0         0.0
VANADIUM          C.0         0.0         0.0
YTTERBIUM         0.0         0.0         0.0
YTTRIUM           0.0         0.0         0.0
ZINC              0.0         0.0         0.0
ZIRCCNIUM         0.0         0.0         0.0
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JOB#-741-40          OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X-      0.0  Y-      0.0  Z-      0.0
DATE DRILL COMPL- 61875  DATE CONV TO MONITOR- 61875  AQUIFER 1:     0.0 -   0.0 FT  AQUIFER 2:    0.0 -   0.0 FT


SAMPLES             1          2          3

DATE            63075      71575      80575
DEPTH            5.20       7.99       8.12
TEMP             52.5       51.8       50.0
LAB ID
LAB NUM          2268       1549       2055
METHOD              3          3          3
AQUIF.LOC.          A          A          A

WET

ALUMINUM        0.0        0.0        0.0
AMMONIA         0.0        0.400     -0.100
ARSENIC        -0.010     -0.010     -0.010
BICARBCNAT    580.000    590.000    635.000
CADMIUM        -0.010     -0.010     -0.010
CALCIUM        31.000     75.000     84.000
CARBONATE      -0.100     -0.100     -0.100
CHLORIDE        9.500     25.000     11.000
CHROMIUM       -0.010     -0.010     -0.010
COPPER         -0.100     -0.100     -0.100
FLUORIDE        0.200      0.300      0.400
HYDROXIDE       0.0        0.0        0.0
IRON            2.800     13.300      1.900
LEAD            0.040      0.800      0.300
MAGNESIUM     145.000     81.000    110.000
MERCURY        -0.002     -0.002     -0.002
NITRATE         5.200      4.600      5.100
PHOSPHATE      -0.100     -0.100     -0.100
POTASSIUM       0.0        0.0        0.0
SELENIUM       -0.010     -0.010     -0.010
SIL DIOXID     28.000     30.000     29.000
SODIUM        175.000    250.000    185.000
SULFATE       510.000    500.000    485.000
SULFIDE         0.0        0.0        0.0
ZINC            0.100      1.500      0.100
GROS ALPHA      0.0        4.700      0.0
GROSS BETA      0.0        4.000      0.0
HARDNESS      665.000    520.000    655.000
PH              7.000      7.000      7.000
CONDUCTANC   1910.000   1688.000   1490.000
DIS SOLIDS   1190.000   1260.000   1220.000
MANGANESE       0.100      1.100      0.100
ALKALINITY    475.000    480.000    520.000
CYANIDE        -0.010     -0.010     -0.010
BORON           0.600     -0.010      0.600
BARIUM         -1.000     -1.000     -1.000
SILVER         -0.010     -0.010     -0.010
NICKEL          0.010      0.060      0.010
LITHIUM         0.0        0.0        0.0
TOC             0.0        0.0        0.0
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RBOSP PROGRESS REPORT

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SAMPLES            1           2           3

SPECTROGRAPHIC

ALUMINUM        0.0         0.0         0.0
ANTIMCNY        0.0         0.0         0.0
ARSENIC         0.0         0.0         0.0
BARIUM          0.0         0.0         0.0
BERYLIUM        0.0         0.0         0.0
BISMUTH         0.0         0.0         0.0
BORON           0.0         0.0         0.0
CADMIUM         0.0         0.0         0.0
CALCIUM         0.0         0.0         0.0
CERIUM          0.0         0.0         0.0
CESIUM          0.0         0.0         0.0
CHROMIUM        0.0         0.0         0.0
COBCLT          0.0         0.0         0.0
CCLUMBIUM       0.0         0.0         0.0
COPPER          0.0         0.0         0.0
DYSPROSIUM      0.0         0.0         0.0
ERBIUM          0.0         0.0         0.0
EUROPIUM        0.0         0.0         0.0
GADOLINIUM      0.0         0.0         0.0
GALLIUM         0.0         0.0         0.0
GERMANIUM       0.0         0.0         0.0
GOLD            0.0         0.0         0.0
HAFNIUM         0.0         0.0         0.0
HOLMIUM         0.0         0.0         0.0
INDIUM          0.0         0.0         0.0
IRIDIUM         0.0         0.0         0.0
IRCN            0.0         0.0         0.0
LANTHANUM       0.0         0.0         0.0
LEAD            0.0         0.0         0.0
LITHIUM         0.0         0.0         0.0
LUTETIUM        0.0         0.0         0.0
MAGNESIUM       0.0         0.0         0.0
MANGANESE       0.0         0.0         0.0
MERCURY         0.0         0.0         0.0
MOLYBDENUM      0.0         0.0         0.0
NEODYMIUM       0.0         0.0         0.0
NICKEL          0.0         0.0         0.0
OSMIUM          0.0         0.0         0.0
PALLADIUM       0.0         0.0         0.0
PLATINUM        0.0         0.0         0.0
POTASSIUM       0.0         0.0         0.0
PRASEODYMI      0.0         0.0         0.0
RADIUM          0.0         0.0         0.0
RHENIUM         0.0         0.0         0.0
RHODIUM         0.0         0.0         0.0
RUBIDIUM        0.0         0.0         0.0
RUTHENIUM       0.0         0.0         0.0
SAMARIUM        0.0         0.0         0.0
SCANDIUM        0.0         0.0         0.0
SELENIUM        0.0         0.0         0.0
SILICCN         0.0         0.0         0.0
SILVER          0.0         0.0         0.0
SODIUM          0.0         0.0         0.0
```

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID S-24

SAMPLES	1	2	3
STRONTIUM	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0
TIN	0.0	0.0	0.0
TITANIUM	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0
ZINC	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0

```
JOB#-741-40          OWNER-TOSCO                          LOCATIONS: X- 158653.14 Y- 223381.59 Z-    6741.00
DATE DRILL COMPL-102373  DATE CONV TO MCNITOR-111974  AQUIFER 1:  220.00- 440.00FT  AQUIFER 2:  820.00-1100.00FT


SAMPLES               1         2         3         4         5         6         7         8         9

DATE              32975     42875     42975     51775     51775     61075     61075     71475     71475
DEPTH             72.08     25.60    157.50     26.90    123.00     26.10    127.00    125.37     23.57
TEMP               48.2      46.4      56.3      48.9      52.7      46.4      51.8      59.9      56.3
LAB ID
LAB NUM            8878       172       171       433       432       893       892      1355      1356
METHOD               3A         3        3A         3        3A         3        3A         3         3
AQUIF.LOC.            L         U         L         U         L         U         L         L         U

WET

ALUMINUM          1.600    0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
AMMONIA           0.800   -0.100    -0.100     0.800     0.500     0.800     0.300     0.600     0.300
ARSENIC          -0.010   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
BICARBCNAT      440.000  110.000   350.000    98.000   420.000   150.000   400.000  1170.000   255.000
CADMIUM          -0.010   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
CALCIUM           9.600   17.000    16.000     8.000     5.000     6.600    13.000    15.000     9.000
CARBCNATE        84.000   -0.100    40.000     6.000   100.000    18.000   180.000    -0.100    42.000
CHLORIDE          5.600   36.000    36.000    34.000    14.000    41.000    20.000    23.000    16.000
CHROMIUM         -0.010   -0.050    -0.050    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
CCPPER            0.200    0.190     0.100     0.100    -0.100    -0.100    -0.100    -0.100    -0.100
FLUORIDE          0.140    0.600     0.600     0.700     6.000     0.800    10.000    18.000     1.000
HYDRCXIDE         0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
IRCN              9.900    8.700     2.200     4.800     3.400     7.000     4.000     0.900     3.900
LEAD              0.090    3.400     0.800     1.000     0.200     0.800     0.100     0.090     0.300
MAGNESIUM        20.000   12.000    54.000     3.900    14.000    20.000    12.000    21.000    29.000
MERCURY          -0.010   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.002    -0.002
NITRATE           0.100   -0.100    -0.100    -0.100     0.200     0.400     0.500     0.400     1.100
PHOSPHATE        -0.100   -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100
POTASSIUM         0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SELENIUM         -0.010   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
SIL DIOXID       -0.100    1.900     4.700     0.500     1.700     0.400     1.500    17.000    13.000
SODIUM          245.000  140.000   210.000   170.000   260.000   160.000   290.000   500.000   470.000
SULFATE          96.000  270.000   300.000   275.000    70.000   230.000    60.000   155.000   220.000
SULFIDE           0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ZINC              0.600    1.600     0.600     0.400     3.200     0.500     0.800     0.800     0.300
GRCS ALPHA        0.0      0.500     1.400     2.400     4.000     1.100     1.700     6.400     2.400
GROSS BETA        0.0      5.000     0.0       0.0     260.000     0.0     124.000     0.0      11.000
HARDNESS        110.000   90.000   260.000    36.000    72.000   100.000    80.000   125.000   140.000
PH                7.800    6.000     6.400     6.800     7.000     7.000     7.400     7.300     7.200
CONDUCTANC     1050.000  810.000  1130.000   810.000  1160.000   890.000  1390.000  1891.000   889.000
DIS SOLIDS      690.000  540.000   830.000   550.000   680.000   560.000   790.000  1320.000   900.000
MANGANESE         0.200    0.560     0.060     0.200     0.080     0.200     0.090    -0.050     0.200
ALKALINITY      429.000   90.000   323.000    85.000   430.000   135.000   480.000   960.000   244.000
CYANIDE          -0.010   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
BORCN             0.600   -0.100     3.300    -0.010     7.000     0.010     0.070     1.000     0.800
BARIUM           -1.000   -1.000    -0.100    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000
SILVER           -0.010   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
NICKEL            0.020    0.040     0.030     0.030     0.010     0.020     0.020     0.020     0.020
LITHIUM           0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
TOC               0.0     21.000    16.000    17.000    12.000    10.000     6.000     0.0       0.0
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RBOSP PROGRESS REPORT

UPPER AND LOWER AQUIFER MONITORING

SECTION 1.2.7

Water Level Data

Wet Chemical and Spectrographic Analyses, Upper and Lower Aquifer

EXPLANATION -- WATER QUALITY COMPUTER OUTPUT SHEETS

1. Core Hole Description Data

   Job # 741-40-

   Assigned project number for Rio Blanco Oil Shale Project by Wright Water Engineers, Inc.

   Location

   X = Coordinates east in feet, 7200 foot
   Datum of the Colorado State Coordinate System

   Y = Coordinates, north in feet, 7200 foot
   Datum of the Colorado State Coordinate System

   Z = Elevation in feet above sea of the core hole at ground surface

   Date Drill Compl.-

   The date when drilling was completed on the Core Hole.

   Conv. to Monitor-

   Date the Core Hole was converted to a Monitor Hole.

   Aquifer 1:

   Depth in feet to the top and bottom of the upper aquifer from ground surface.

   Aquifer 2:

   Depth in feet to the top and bottom of the lower aquifer from ground surface.

2. Sample Description Data

   Date-

   Date water sample was collected.

   Depth-

   Depth for Method 1: Total depth sample was collected during drilling.

   Depth for Method 2: See aquifer 1 or 2.

   Depth for Method 3: The static water level of the hole when sampled.

   Temp.-

   Field temperature of sample (°F)

   Lab ID-

   Designation number assigned by the analyzing laboratory.

Method

0. Drilling soap sample
1. Drilling program sample
2. Pumping test program sample
3. Monitoring program sample
3A. Monitoring program sample, not representative of aquifer conditions

Aquif. Loc.

U	Sample from upper aquifer during drilling, pumping or monitoring
L	Sample from lower aquifer during pumping test or monitoring
C	Sample combination of upper and lower aquifer during drilling
A	Sample from alluvial aquifer

3. Wet -- Wet Chemical Analysis

Values are in milligrams per liter, except for:

Gross Alpha-- picocuries per liter
Gross Beta -- picocuries per liter
pH -- standard pH values
Conductance-- micromhos per centimeter

Negative values indicate less than minimum detectable limit indicated

0.0 value - constituent not tested for

**** - not analyzed for using wet chemical analysis

4. Spectrographic - spectrographic analysis of 67 elements

All values are in milligrams per liter

0.0 means less than minimum detectable amount

99999.000 means major amount

***** is used in Water Quality Analysis Summary to indicate an element has not been analyzed above the minimum detectable limit

09/26/75 WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID AM-2A

JOB#-731-52 OWNER-AMOCO LOCATIONS: X- 158182.71 Y- 214994.65 Z- 7245.00
DATE DRILL COMPL- 92673 DATE CONV TO MONITOR-111474 AQUIFER 1: 420.00- 980.00FT AQUIFER 2: 1510.00-1610.00FT

SAMPLES	1	2	3	4	5	6	7	8
DATE	33175	42775	42775	51475	51475	61175	61175	71375
DEPTH	615.97	404.29	632.27	399.51	630.97	399.30	636.80	632.78
TEMP	58.1	53.6	59.0	55.6	60.1	57.6	60.8	65.3
LAB ID								
LAB NUM	8879	181	180	429	428	897	896	1352
METHOD	3A	3	3A	3	3A	3	3A	3
AQUIF.LOC.	L	U	L	U	L	U	L	L
WET								
ALUMINUM	-0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AMMONIA	0.0	0.300	-0.100	0.400	0.200	0.500	0.200	0.800
ARSENIC	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BICARBONAT	455.000	645.000	415.000	415.000	380.000	410.000	400.000	2780.000
CADMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
CALCIUM	20.000	83.000	36.000	28.000	18.000	36.000	16.000	4.100
CARBONATE	36.000	-0.100	60.000	42.000	57.000	66.000	75.000	-0.100
CHLORIDE	2.800	8.200	11.000	7.000	41.000	14.000	14.000	75.000
CHROMIUM	-0.010	-0.010	-0.010	-0.010	0.010	-0.010	-0.010	-0.010
COPPER	-0.010	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100
FLUORIDE	-0.050	0.600	0.800	1.100	0.800	1.100	1.100	16.000
HYDROXIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.800	4.100	1.500	8.600	1.600	6.700	1.400	3.000
LEAD	0.050	0.300	0.200	0.400	0.200	0.400	0.080	2.800
MAGNESIUM	58.000	38.000	46.000	51.000	53.000	66.000	66.000	17.000
MERCURY	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.002
NITRATE	-0.100	0.600	-0.100	0.100	-0.100	0.500	0.500	0.500
PHOSPHATE	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100
POTASSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
SIL DIOXID	0.500	21.000	-0.100	20.000	2.700	15.000	1.600	14.000
SODIUM	210.000	285.000	230.000	240.000	245.000	200.000	210.000	1170.000
SULFATE	305.000	410.000	320.000	345.000	330.000	290.000	270.000	185.000
SULFIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.010	0.100	0.100	0.500	0.200	0.300	0.300	0.900
GROS ALPHA	0.0	4.800	4.000	4.000	4.600	1.100	11.000	8.500
GROSS BETA	0.0	0.0	0.0	0.0	36.000	0.0	0.0	48.000
HARDNESS	290.000	365.000	230.000	280.000	265.000	360.000	310.000	80.000
PH	7.300	7.100	7.100	7.000	7.400	7.000	6.100	7.600
CONDUCTANC	1260.000	1550.000	1370.000	1350.000	1340.000	1420.000	1370.000	1995.000
DIS SOLIDS	860.000	1160.000	910.000	950.000	935.000	890.000	850.000	2850.000
MANGANESE	-0.050	0.080	-0.050	0.100	-0.050	0.200	-0.050	0.060
ALKALINITY	405.000	530.000	344.900	374.000	357.000	394.000	391.000	2270.000
CYANIDE	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BORON	0.200	2.200	2.500	0.300	0.600	0.040	0.080	4.800
BARIUM	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
SILVER	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
NICKEL	0.020	0.020	0.010	-0.010	-0.010	0.020	0.020	0.020
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOC	0.0	8.000	7.000	7.000	9.000	5.000	6.000	0.0

RBOSP PROGRESS REPORT

NNN-J23-0000

SAMPLES	1	2	3	4	5	6	7	8
SPECTROGRAPHIC								
ALUMINUM	0.010	0.100	0.100	0.100	0.200	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	0.100	0.500	0.500	0.500	0.500	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	99999.000	99999.000	99999.000	99999.000	99999.000	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBALT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.001	0.010	0.005	0.001	0.010	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.010	0.020	0.020	0.050	0.010	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0
LITHIUM	0.010	0.001	0.001	0.001	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	99999.000	99999.000	99999.000	99999.000	99999.000	0.0	0.0	0.0
MANGANESE	0.0	0.0	0.001	0.001	0.001	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.0	0.001	0.001	0.001	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	2.000	2.000	2.000	1.000	1.000	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	5.000	5.000	5.000	2.000	5.000	0.0	0.0	0.0
SILVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	99999.000	10.000	10.000	10.000	5.000	0.0	0.0	0.0

RBOSP PROGRESS REPORT

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09/26/75
                         WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID AM-2A
SAMPLES            1        2        3        4        5        6        7        8                PAGE   3

STRONTIUM        0.500    0.100    0.100    0.100    0.100    0.0      0.0      0.0
TANTALUM         0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TERBIUM          0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THALLIUM         0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THORIUM          0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THULIUM          0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TIN              0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TITANIUM         0.001    0.0      0.0      0.0      0.0      0.0      0.0      0.0
TUNGSTEN         0.0      0.0      0.001    0.001    0.0      0.0      0.0      0.0
URANIUM          0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
VANADIUM         0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
YTTERBIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
YTTRIUM          0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
ZINC             0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
ZIRCONIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
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RBOSP PROGRESS REPORT

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID AM-3

JOB#-731-52 OWNER-AMCCO LOCATIONS: X- 152310.78 Y- 218712.19 Z- 6924.00
DATE DRILL COMPL-101073 DATE CONV TO MONITOR-110974 AQUIFER 1: 270.00- 400.00FT AQUIFER 2: 750.00- 920.00FT

SAMPLES	1	2	3	4	5	6	7	8	9
DATE	32975	42575	42875	51775	51775	61075	61075	71475	71475
DEPTH	290.87	304.08	45.56	304.85	39.60	310.00	38.70	307.48	33.52
TEMP	55.4	58.1	46.4	57.2	50.0	57.2	49.1	62.6	54.5
LAB ID									
LAB NUM	8880	182	183	430	431	882	883	1353	1354
METHOD	3	3	3	3	3	3	3	3	3
AQUIF.LOC.	L	L	U	L	U	L	U	L	U
WET									
ALUMINUM	0.600	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AMMONIA	0.100	-0.100	0.200	0.200	0.400	0.400	0.400	0.020	0.300
ARSENIC	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BICARBONAT	295.000	310.000	260.000	260.000	170.000	305.000	225.000	330.000	190.000
CADMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	0.010
CALCIUM	20.000	16.000	13.000	15.000	10.000	16.000	12.000	11.000	9.000
CARBONATE	24.000	24.000	18.000	33.000	36.000	30.000	24.000	60.000	42.000
CHLORIDE	1.400	14.000	16.000	14.000	10.000	10.000	6.900	12.000	8.200
CHROMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
COPPER	0.090	0.100	0.100	-0.100	-0.100	-0.100	-0.010	0.200	0.800
FLUORIDE	1.500	1.000	0.800	1.200	0.600	1.400	0.800	5.400	0.700
HYDROXIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	1.000	1.600	7.200	1.300	12.000	2.800	7.200	16.200	16.600
LEAD	0.280	0.500	0.500	0.200	1.200	-0.100	1.100	26.000	3.800
MAGNESIUM	42.000	45.000	40.000	41.000	40.000	38.000	33.000	33.000	34.000
MERCURY	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.002	-0.002
NITRATE	0.100	0.500	0.600	-0.100	1.100	0.500	0.500	0.500	0.600
PHOSPHATE	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100
POTASSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
SIL DIOXID	-0.100	-0.100	-0.100	0.800	0.800	5.700	-0.100	0.600	1.200
SODIUM	155.000	165.000	160.000	175.000	165.000	180.000	150.000	200.000	180.000
SULFATE	270.000	270.000	275.000	285.000	305.000	240.000	255.000	225.000	265.000
SULFIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.020	0.200	1.000	0.200	0.500	0.200	0.300	10.000	1.300
GROS ALPHA	0.0	2.000	6.000	0.200	2.800	2.100	3.400	7.400	2.200
GROSS BETA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.000	4.000
HARDNESS	225.000	225.000	195.000	205.000	190.000	200.000	165.000	165.000	165.000
PH	6.600	6.400	6.800	7.200	7.200	6.900	6.600	7.500	7.300
CONDUCTANC	900.000	965.000	975.000	1000.000	960.000	950.000	915.000	1711.000	1008.000
DIS SOLIDS	660.000	690.000	660.000	690.000	830.000	670.000	600.000	725.000	650.000
MANGANESE	0.260	0.060	0.200	-0.050	0.200	0.080	0.200	0.300	0.700
ALKALINITY	260.000	275.000	230.000	237.000	170.000	275.000	204.000	319.000	189.000
CYANIDE	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BORON	-0.100	3.000	2.400	0.100	0.200	0.010	0.010	0.300	0.300
BARIUM	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
SILVER	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
NICKEL	0.020	0.020	0.200	-0.100	0.020	0.020	0.020	0.020	0.020
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOC	0.0	9.000	10.000	18.000	18.000	7.000	9.000	0.0	0.0

NNN-J23-0000

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SAMPLES            1          2          3          4          5          6          7          8          9


SPECTROGRAPHIC

ALUMINUM        0.010      0.200      0.100      0.050      0.200      0.0        0.0        0.0        0.0
ANTIMONY        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ARSENIC         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BARIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BERYLIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BISMUTH         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BORON           0.500      0.500      0.500      0.200      0.200      0.0        0.0        0.0        0.0
CADMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CALCIUM     99999.000  99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0
CERIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CESIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CHROMIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COBALT          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COLUMBIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COPPER          0.010      0.001      0.010      0.005      0.010      0.0        0.0        0.0        0.0
DYSPROSIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ERBIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
EUROPIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GADOLINIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GALLIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GERMANIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GOLD            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HAFNIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HOLMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
INDIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRIDIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON            0.100      0.050      0.020      0.020      0.010      0.0        0.0        0.0        0.0
LANTHANUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LEAD            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LITHIUM         0.010      0.001      0.010      0.0        0.001      0.0        0.0        0.0        0.0
LUTETIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MAGNESIUM   99999.000  99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0
MANGANESE       0.010      0.005      0.001      0.001      0.001      0.0        0.0        0.0        0.0
MERCURY         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MOLYBDENUM      0.0        0.001      0.001      0.005      0.0        0.0        0.0        0.0        0.0
NEODYMIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
NICKEL          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
OSMIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PALLADIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PLATINUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
POTASSIUM       1.000      2.000      2.000      2.000      1.000      0.0        0.0        0.0        0.0
PRASEODYMI      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RADIUM          0.300      0.0        0.100      0.0        0.0        0.0        0.0        0.0        0.0
RHENIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHODIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUBIDIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUTHENIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SAMARIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SCANDIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SILICON        -0.500      2.000      5.000      5.000      2.000      0.0        0.0        0.0        0.0
SILVER          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SODIUM      99999.000     10.000     10.000     10.000      5.000      0.0        0.0        0.0        0.0
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WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID AM-3

SAMPLES	1	2	3	4	5	6	7	8	9
STRONTIUM	0.100	0.100	0.100	0.100	0.100	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.010	0.001	0.001	0.001	0.0	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.0	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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JOB#-741-40         OWNER-CAMERON                      LOCATIONS: X- 151858.91 Y- 230034.80 Z-   6997.26
DATE DRILL CCMPL- 62072  DATE CONV TO MCNITOR-100874  AQUIFER 1:  220.00- 310.00FT  AWUIFER 2:  940.00-1020.00FT


SAMPLES              1          2

DATE             32475      42975
DEPTH           134.81     132.02
TEMP              51.8       52.0
LAB ID
LAB NUM           8153       9780
METHOD               3          3
AQUIF.LOC.           U          U

WET

ALUMINUM         0.370     0.0
AMMONIA          1.000      0.250
ARSENIC         -0.010     -0.010
BICARBONAT     190.000    120.000
CADMIUM          0.004     -0.010
CALCIUM         48.000     62.000
CARBONATE       -0.100      6.000
CHLCRIDE        27.000     21.000
CHRCMIUM        -0.010     -0.010
CCPPER           0.010      0.030
FLUCRIDE         0.400      0.200
HYDROXIDE        0.0        0.0
IRCN             0.410      0.310
LEAD             0.003      0.080
MAGNESIUM       27.000     12.000
MERCURY          0.045     -0.010
NITRATE          0.200      3.000
PHOSPHATE        0.100     -0.100
POTASSIUM        0.0        0.0
SELENIUM        -0.010     -0.010
SIL DIOXID      24.000     30.000
SODIUM         190.000    155.000
SULFATE        410.000    360.000
SULFIDE          0.0        0.0
ZINC             0.028      0.070
GROS ALPHA       6.100      0.0
GROSS BETA      13.000      0.0
HARDNESS       230.000    205.000
PH               6.000      6.000
CCNDUCTANC    1100.000   1120.000
DIS SCLIDS     820.000    710.000
MANGANESE        0.150      0.040
ALKALINITY     155.000    104.900
CYANIDE         -0.010     -0.010
BORON           -0.010      0.200
BARIUM          -1.000     -1.000
SILVER           0.001      0.050
NICKEL          -0.001      0.020
LITHIUM          0.0        0.0
TOC              0.0        4.000
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SAMPLES              1          2


SPECTROGRAPHIC

ALUMINUM         0.100      0.0
ANTIMONY         0.0        0.0
ARSENIC          0.0        0.0
BARIUM           0.0        0.0
BERYLIUM         0.0        0.0
BISMUTH          0.0        0.0
BORON            0.100      0.0
CADMIUM          0.0        0.0
CALCIUM      99999.000      0.0
CERIUM           0.0        0.0
CESIUM           0.0        0.0
CHROMIUM         0.0        0.0
COBOLT           0.0        0.0
COLUMBIUM        0.0        0.0
COPPER           0.001      0.0
DYSPROSIUM       0.0        0.0
ERBIUM           0.0        0.0
EUROPIUM         0.0        0.0
GADOLINIUM       0.0        0.0
GALLIUM          0.0        0.0
GERMANIUM        0.0        0.0
GOLD             0.0        0.0
HAFNIUM          0.0        0.0
HOLMIUM          0.0        0.0
INDIUM           0.0        0.0
IRIDIUM          0.0        0.0
IRON             0.100      0.0
LANTHANUM        0.0        0.0
LEAD             0.0        0.0
LITHIUM          0.100      0.0
LUTETIUM         0.0        0.0
MAGNESIUM    99999.000      0.0
MANGANESE        0.010      0.0
MERCURY          0.0        0.0
MOLYBDENUM       0.0        0.0
NEODYMIUM        0.0        0.0
NICKEL           0.0        0.0
OSMIUM           0.0        0.0
PALLADIUM        0.0        0.0
PLATINUM         0.0        0.0
POTASSIUM        2.000      0.0
PRASEODYMI       0.0        0.0
RADIUM           0.0        0.0
RHENIUM          0.0        0.0
RHODIUM          0.0        0.0
RUBIDIUM         0.0        0.0
RUTHENIUM        0.0        0.0
SAMARIUM         0.0        0.0
SCANDIUM         0.0        0.0
SELENIUM         0.0        0.0
SILICON         10.000      0.0
SILVER           0.0        0.0
SODIUM       99999.000      0.0
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SAMPLES             1          2

STRONTIUM        0.100       0.0
TANTALUM         0.0         0.0
TERBIUM          0.0         0.0
THALLIUM         0.0         0.0
THORIUM          0.0         0.0
THULIUM          0.0         0.0
TIN              0.0         0.0
TITANIUM         0.0         0.0
TUNGSTEN         0.0         0.0
URANIUM          0.0         0.0
VANADIUM         0.0         0.0
YTTERBIUM        0.0         0.0
YTTRIUM          0.0         0.0
ZINC             0.0         0.0
ZIRCONIUM        0.0         0.0
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WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID CE 702

JOB#- OWNER-CAMERON LOCATIONS: X- 163314.86 Y- 228928.97 Z- 6656.30
DATE DRILL COMPL- 82972 DATE CONV TO MONITOR-112674 AQUIFER 1: 350.00- 440.00FT AQUIFER 2: 1375.00-1540.00FT

SAMPLES	1	2	3	4	5	6	7	8	9	10
DATE	32175	32175	42175	42175	51875	51875	61075	61075	71475	71475
DEPTH	49.00	23.79	51.10	39.07	51.28	36.71	41.00	52.90	38.13	51.61
TEMP	63.0	61.7	61.7	61.7	62.1	60.8	59.4	60.8	72.5	68.9
LAB ID										
LAB NUM	8306	8307	9782	9781	355	354	757	758	1221	1222
METHOD	3	3	3	3	3	3	3	3	3	3
AQUIF.LOC.	U	L	U	L	U	L	L	U	L	U
WET										
ALUMINUM	0.080	-0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AMMONIA	0.420	0.420	1.800	1.500	1.800	1.600	1.100	1.200	0.900	0.900
ARSENIC	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BICARBONAT	2415.000	2780.000	2590.000	2770.000	2390.000	1750.000	2390.000	2100.000	2650.000	2760.000
CADMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	0.010	0.010	-0.010	-0.010
CALCIUM	7.000	3.700	7.400	3.300	4.900	1.600	0.800	4.900	5.600	15.000
CARBONATE	190.000	340.000	140.000	300.000	255.000	690.000	710.000	335.000	360.000	100.000
CHLORIDE	52.000	49.000	65.000	61.000	59.000	67.000	69.000	55.000	14.000	69.000
CHROMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
COPPER	-0.010	-0.010	0.070	0.040	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100
FLUORIDE	25.000	40.000	26.000	24.000	25.000	30.000	34.000	26.000	30.000	30.000
HYDROXIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	-0.050	-0.050	1.800	0.720	-0.050	1.800	1.400	3.100	1.400	7.000
LEAD	0.020	0.020	0.300	0.900	0.100	0.600	0.200	0.100	0.100	0.300
MAGNESIUM	3.500	3.600	5.200	2.900	9.700	6.800	5.400	7.700	3.800	6.600
MERCURY	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.002	-0.002
NITRATE	-0.010	0.740	0.200	0.100	1.700	0.200	0.300	0.700	0.400	0.200
PHOSPHATE	0.350	0.500	-0.100	0.300	-0.100	0.300	0.400	-0.100	0.400	-0.100
POTASSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
SIL DIOXID	9.300	4.400	27.000	11.000	18.000	10.000	11.000	19.000	14.000	20.000
SODIUM	1100.000	1380.000	1170.000	1360.000	1170.000	1250.000	1560.000	1080.000	1340.000	1090.000
SULFATE	-4.000	-4.000	72.000	75.000	50.000	60.000	30.000	30.000	100.000	100.000
SULFIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.150	0.640	1.000	0.900	0.600	1.100	68.000	0.700	0.300	0.700
GROS ALPHA	6.500	17.000	0.0	3.500	9.800	14.000	12.000	10.000	12.000	22.000
GROSS BETA	0.0	30.000	0.0	0.0	0.0	0.0	0.0	0.0	49.000	73.000
HARDNESS	32.000	24.000	40.000	20.000	52.000	32.000	24.000	44.000	32.000	64.000
PH	8.000	8.800	7.400	8.000	7.600	8.000	8.600	7.400	8.200	7.600
CONDUCTANC	4080.000	4850.000	4000.000	4800.000	3920.000	4800.000	5180.000	4200.000	4200.000	3815.000
DIS SOLIDS	2570.000	3180.000	2780.000	3200.000	2760.000	2980.000	3640.000	2590.000	3170.000	2790.000
MANGANESE	-0.050	-0.050	0.020	-0.050	-0.050	-0.050	-0.050	-0.050	-0.050	0.080
ALKALINITY	2135.000	2850.000	2235.000	2515.000	2170.000	1995.000	2540.000	1975.000	2163.000	2343.000
CYANIDE	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BORON	3.100	3.700	3.300	0.560	4.300	3.000	3.400	3.200	3.000	3.900
BARIUM	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
SILVER	-0.010	-0.010	0.060	-0.010	-0.010	-0.010	-0.010	-0.100	-0.010	-0.010
NICKEL	0.010	0.010	0.040	0.050	0.030	0.020	0.060	0.040	0.010	0.010
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOC	0.0	0.0	8.000	14.000	13.000	14.000	11.000	13.000	0.0	0.0

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SAMPLES            1          2         3         4         5         6         7         8         9        10


SPECTROGRAPHIC

ALUMINUM        0.010      0.500      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ANTIMONY        0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ARSENIC         0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
BARIUM          0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
BERYLIUM        0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
BISMUTH         0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
BORON           0.100      0.100      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
CADMIUM         0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
CALCIUM        10.000  99999.000      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
CERIUM          0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
CESIUM          0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
CHROMIUM        0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
COBALT          0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
COLUMBIUM       0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
COPPER          0.005      0.010      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
DYSPROSIUM      0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ERBIUM          0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
EUROPIUM        0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
GADOLINIUM      0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
GALLIUM         0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
GERMANIUM       0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
GOLD            0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
HAFNIUM         0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
HOLMIUM         0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
INDIUM          0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
IRIDIUM         0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
IRON            0.010      0.500      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
LANTHANUM       0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
LEAD            0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
LITHIUM         0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
LUTETIUM        0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
MAGNESIUM      10.000  99999.000      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
MANGANESE       0.001      0.020      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
MERCURY         0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
MOLYBDENUM      0.0        0.001      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
NEODYMIUM       0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
NICKEL          0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
OSMIUM          0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
PALLADIUM       0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
PLATINUM        0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
POTASSIUM       5.000      5.000      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
PRASEODYMI      0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
RADIUM          0.0        0.0        0.0       0.0       0.100     0.0       0.500     0.400     0.0       0.0
RHENIUM         0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
RHODIUM         0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
RUBIDIUM        0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
RUTHENIUM       0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SAMARIUM        0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SCANDIUM        0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SELENIUM        0.0        0.0        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SILICON         5.000      2.000      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SILVER          0.0        0.000      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SODIUM      99999.000  99999.000      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
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WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID CE 702

SAMPLES	1	2	3	4	5	6	7	8	9	10
STRONTIUM	0.100	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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                                WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID CE 705A

JOB#-              OWNER-CAMERON                     LOCATIONS: X- 158619.60 Y- 223358.84 Z-    6741.20
DATE DRILL COMPL- 73172  DATE CONV TO MONITOR-101874  AQUIFER 1:  220.00- 440.00FT  AQUIFER 2:  820.00-1100.00FT


SAMPLES             1

DATE            42575
DEPTH           27.88
TEMP             50.0
LAB ID
LAB NUM          9784
METHOD              3
AQUIF.LOC.          U

WET

ALUMINUM        0.0
AMMONIA         0.250
ARSENIC        -0.010
BICARBONAT    340.000
CADMIUM        -0.010
CALCIUM        38.000
CARBONATE      36.000
CHLORIDE        4.300
CHROMIUM       -0.010
COPPER          0.040
FLUORIDE        0.900
HYDROXIDE       0.0
IRON            1.400
LEAD            0.100
MAGNESIUM      56.000
MERCURY        -0.010
NITRATE         0.150
PHOSPHATE      -0.100
POTASSIUM       0.0
SELENIUM       -0.010
SIL DIOXID      5.400
SODIUM        150.000
SULFATE       270.000
SULFIDE         0.0
ZINC            0.130
GROS ALPHA      1.700
GROSS BETA      0.0
HARDNESS      325.000
PH              6.400
CONDUCTANC   1120.000
DIS SOLIDS    730.000
MANGANESE       0.240
ALKALINITY    310.000
CYANIDE        -0.010
BORON          -0.100
BARIUM         -1.000
SILVER          0.080
NICKEL          0.030
LITHIUM         0.0
TOC             4.000
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SAMPLES              1


SPECTROGRAPHIC

ALUMINUM        0.0
ANTIMONY        0.0
ARSENIC         0.0
BARIUM          0.0
BERYLIUM        0.0
BISMUTH         0.0
BORON           0.0
CADMIUM         0.0
CALCIUM         0.0
CERIUM          0.0
CESIUM          0.0
CHROMIUM        0.0
COBALT          0.0
COLUMBIUM       0.0
COPPER          0.0
DYSPROSIUM      0.0
ERBIUM          0.0
EUROPIUM        0.0
GADOLINIUM      0.0
GALLIUM         0.0
GERMANIUM       0.0
GOLD            0.0
HAFNIUM         0.0
HOLMIUM         0.0
INDIUM          0.0
IRIDIUM         0.0
IRON            0.0
LANTHANUM       0.0
LEAD            0.0
LITHIUM         0.0
LUTETIUM        0.0
MAGNESIUM       0.0
MANGANESE       0.0
MERCURY         0.0
MOLYBDENUM      0.0
NEODYMIUM       0.0
NICKEL          0.0
OSMIUM          0.0
PALLADIUM       0.0
PLATINUM        0.0
POTASSIUM       0.0
PRASEODYMI      0.0
RADIUM          0.0
RHENIUM         0.0
RHODIUM         0.0
RUBIDIUM        0.0
RUTHENIUM       0.0
SAMARIUM        0.0
SCANDIUM        0.0
SELENIUM        0.0
SILICON         0.0
SILVER          0.0
SODIUM          0.0
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SAMPLES             1

STRONTIUM        0.0
TANTALUM         0.0
TERBIUM          0.0
THALLIUM         0.0
THORIUM          0.0
THULIUM          0.0
TIN              0.0
TITANIUM         0.0
TUNGSTEN         0.0
URANIUM          0.0
VANADIUM         0.0
YTTERBIUM        0.0
YTTRIUM          0.0
ZINC             0.0
ZIRCONIUM        0.0
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09/26/75                               WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID CE 707                                 PAGE

JOB#-              OWNER-CAMERON                         LOCATIONS: X- 152519.20 Y- 226697.70 Z-    7181.91
DATE DRILL CCMPL- 81472  DATE CONV TO MCNITOR-102474   AQUIFER 1:   200.00- 560.00FT   AQUIFER 2: 1040.00-1360.00FT


SAMPLES              1          2          3          4          5          6          7          8          9         10

DATE             33175      33175      42675      42675      51575      51575      61075      61075      71475      71475
DEPTH           267.14     549.77     263.33     571.90     262.84     564.81     264.50     567.90     565.21     262.31
TEMP              51.8       55.6       53.6       57.2       53.6       59.4       52.7       58.1       62.2       55.4
LAB ID
LAB NUM           8692       8691       9786       9785        357        356        760        759       1223       1224
METHOD               3         3A          3         3A          3         3A          3         3A          3          3
AQUIF.LOC.           U          L          U          L          U          L          U          L          L          U

WET

ALUMINUM        -0.100     -0.100      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
AMMCNIA          0.200      0.500      0.120      0.370      0.300      0.600      0.200      0.400      0.700      0.200
ARSENIC         -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
BICARBCNAT     660.000    280.000    560.000    250.000    700.000    315.000    640.000    240.000   1330.000    645.000
CADMIUM         -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010      0.010     -0.010     -0.010
CALCIUM        150.000      7.400    155.000      9.000    185.000      5.700    170.000      5.700     15.000    145.000
CARBCNATE       -0.100     42.000     -0.100     49.000     -0.100     46.000     -0.100     96.000     78.000     -0.100
CHLORIDE         9.700     -1.000     11.000      2.800     14.000      5.500      6.900     -1.000     41.000     21.000
CHRCMIUM        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
CCPPER          -0.010     -0.010     -0.010     -0.010     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100
FLUORIDE         0.100      1.900      0.100      1.800      0.200      1.900      0.100      1.700     30.000      0.300
HYDRCXIDE        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRCN            -0.050     -0.050      1.400      0.530     -0.050      1.200      8.100      3.300      2.500      8.300
LEAD             0.160      0.070      0.140      0.160      0.060      0.200      0.030      0.100      0.060      0.020
MAGNESIUM       55.000     24.000     40.000     21.000      7.900     21.000     48.000     21.000     13.000     23.000
MERCURY         -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.002     -0.002
NITRATE         -0.100      0.200      4.300      0.300      0.400      0.300      0.600      0.200      2.000      1.600
PHCSPHATE       -0.100     -0.100     -0.100     -0.100      0.100      0.100     -0.100     -0.100     -0.100     -0.100
POTASSIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
SIL DIOXID      57.000      3.300     55.000      0.710     53.000      0.500     54.000      1.600     13.000     49.000
SODIUM         180.000    150.000    160.000    145.000    250.000    165.000    170.000    180.000    650.000    250.000
SULFATE        345.000    140.000    330.000    130.000    385.000    125.000    330.000    110.000    125.000    350.000
SULFIDE          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC            -0.010      0.010      0.050      2.200      0.020      0.100     -0.100      0.300      0.100      0.500
GRCS ALPHA       0.0        0.0        0.700      0.300      6.000      5.500      1.800      5.100      6.800      8.900
GRCSS BETA       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HARDNESS       610.000    115.000    550.000    110.000    495.000    100.000    615.000    100.000     92.000    450.000
PH               6.400      6.800      6.500      7.500      6.600      7.200      6.400      6.600      7.200      6.800
CONDUCTANC    1320.000    760.000   1560.000    808.000   1440.000    830.000   1510.000    830.000   1829.000   1472.000
DIS SCLIDS    1120.000    505.000   1030.000    480.000   1420.000    530.000   1100.000    540.000   1620.000   1160.000
MANGANESE        0.150      0.100      0.070      0.060     -0.050     -0.050      0.070      0.080      0.070      0.090
ALKALINITY     540.000    264.000    460.000    244.000    575.000    298.000    525.000    274.000   1154.000    530.000
CYANIDE         -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
BORCN            0.400      0.300      1.700      4.000      1.000      0.800      0.200      0.200      1.500      0.500
BARIUM          -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000
SILVER           0.100      0.050     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
NICKEL           0.030      0.020      0.030      0.040      0.010      0.010      0.020      0.100      0.010      0.010
LITHIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TCC              0.0        0.0        5.000      3.000      8.000      8.000      4.000      3.000      0.0        0.0
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RBOSP PROGRESS REPORT

09/26/75

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID CE 707

SAMPLES	1	2	3	4	5	6	7	8	9	10
SPECTROGRAPHIC										
ALUMINUM	0.100	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	0.100	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBOLT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.100	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LITHIUM	0.0	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANGANESE	0.200	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	0.100	0.500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.0	0.0	0.0	0.0	0.0	0.400	0.0	0.200	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	10.000	5.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILVER	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RBOSP PROG

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SAMPLES           1        2        3        4        5        6        7        8        9        10

STRONTIUM       0.001    0.100    0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TANTALUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TERBIUM         0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THALLIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THORIUM         0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THULIUM         0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TIN             0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TITANIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TUNGSTEN        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
URANIUM         0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
VANADIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
YTTERBIUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
YTTRIUM         0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
ZINC            0.010    0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
ZIRCONIUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
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JOB#- OWNER-CAMERON LOCATIONS: X- 152468.20 Y- 224462.00 Z- 6917.86
DATE DRILL CCMPL- 73072 DATE CONV TO MONITOR-102374 AQUIFER 1: 150.00- 300.00FT AQUIFER 2: 800.00- 880.00FT

SAMPLES	1	2	3	4	5	6	7	8	9	10
DATE	32375	32375	42275	42275	51875	51875	61075	61075	71475	71475
DEPTH	53.96	280.08	296.60	53.82	294.25	52.93	297.50	51.00	46.45	295.70
TEMP	51.8	54.5	57.2	54.2	56.3	53.6	56.8	53.4	54.5	59.9
LAB ID										
LAB NUM	8163	8164	9787	9788	358	359	761	762	1226	1225
METHCD	3	3	3	3	3	3	3	3	3	3A
AQUIF.LOC.	U	L	L	U	L	U	L	U	U	L
WET										
ALUMINUM	1.000	0.110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AMMCNIA	0.850	2.000	-0.100	0.200	0.300	0.200	0.200	0.200	0.400	0.500
ARSENIC	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BICARBONAT	560.000	525.000	440.000	530.000	480.000	575.000	380.000	380.000	545.000	370.000
CADMIUM	-0.001	0.006	-0.010	-0.010	-0.010	-0.010	-0.010	0.010	-0.010	-0.010
CALCIUM	150.000	30.000	37.000	135.000	22.000	52.000	20.000	115.000	66.000	17.000
CARBONATE	-0.100	-0.100	24.000	-0.100	29.000	-0.100	78.000	78.000	-0.100	78.000
CHLORIDE	11.000	11.000	8.600	11.000	11.000	12.000	6.900	14.000	14.000	14.000
CHRCMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
COPPER	0.030	0.020	-0.010	-0.010	-0.100	-0.100	-0.100	0.100	-0.100	-0.100
FLUCRIDE	3.600	4.000	1.800	0.400	2.300	0.400	2.800	0.200	0.500	4.300
HYDRCXIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRCN	3.400	3.000	0.660	0.910	1.200	2.500	2.200	8.800	8.900	7.800
LEAD	0.003	0.004	0.100	0.110	0.060	0.600	0.060	0.060	0.200	0.600
MAGNESIUM	36.000	33.000	20.000	46.000	23.000	82.000	20.000	29.000	62.000	13.000
MERCURY	0.005	0.001	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.002	-0.002
NITRATE	0.300	-0.100	0.300	0.500	1.400	-0.100	0.200	0.200	0.300	0.900
PHOSPHATE	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100
POTASSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
SIL DIOXID	36.000	11.000	13.000	4.700	13.000	48.000	13.000	43.000	43.000	14.000
SCDIUM	200.000	210.000	180.000	130.000	225.000	210.000	225.000	190.000	200.000	245.000
SULFATE	410.000	190.000	170.000	310.000	160.000	360.000	125.000	285.000	300.000	130.000
SULFIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	-0.100	0.200	0.060	0.040	0.100	0.100	0.100	0.200	0.100	2.100
GROS ALPHA	1.200	1.500	0.0	0.900	0.500	4.500	3.900	1.400	0.800	1.700
GROSS BETA	0.0	19.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARDNESS	520.000	210.000	175.000	520.000	150.000	465.000	130.000	410.000	420.000	96.000
PH	6.400	6.000	6.600	6.400	6.800	6.800	7.000	6.200	6.900	7.100
CONDUCTANC	1360.000	1050.000	1100.000	1400.000	1010.000	1300.000	1020.000	1350.000	1365.000	979.000
DIS SOLIDS	1120.000	750.000	670.000	900.000	720.000	1050.000	680.000	950.000	960.000	750.000
MANGANESE	0.190	0.120	0.050	0.070	-0.050	-0.010	0.050	0.100	0.100	0.070
ALKALINITY	460.000	430.000	380.000	435.000	419.000	470.000	374.000	374.000	445.000	869.000
CYANIDE	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BORCN	-0.010	-0.010	1.900	0.470	0.900	0.400	0.400	0.200	0.400	0.200
BARIUM	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
SILVER	0.001	-0.001	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
NICKEL	-0.001	-0.001	0.030	0.020	0.030	0.010	-0.010	0.020	-0.010	-0.010
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOC	0.0	0.0	4.000	7.000	7.000	5.000	3.000	4.000	0.0	0.0

RBOSP PROCESSED REPORT

SAMPLES	1	2	3	4	5	6	7	8	9	10
SPECTROGRAPHIC										
ALUMINUM	0.100	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.001	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	0.500	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBALT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.010	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	1.000	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LITHIUM	0.010	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANGANESE	0.020	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.005	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	1.000	5.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	5.000	2.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILVER	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	10.000	5.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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09/26/75                    WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID CE 708                    PAGE 21

SAMPLES          1         2         3         4         5         6         7         8         9        10

STRCNTIUM      0.100     0.100     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
TANTALUM       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
TERBIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
THALLIUM       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
THCRIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
THULIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
TIN            0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
TITANIUM       0.005     0.005     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
TUNGSTEN       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
URANIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
VANADIUM       0.001     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
YTTERBIUM      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
YTTRIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ZINC           0.0       0.010     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ZIRCCNIUM      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
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JOB#- OWNER-CAMERON LOCATIONS: X- 157063.10 Y- 227185.70 Z- 6771.00
DATE DRILL COMPL- 91072 DATE CONV TO MONITOR-110174 AQUIFER 1: 120.00- 510.00FT AQUIFER 2: 980.00-1260.00FT

SAMPLES	1	2	3	4	5	6	7	8	9	10
DATE	32975	32975	42275	42275	51875	51875	61075	61075	71475	71475
DEPTH	53.25	136.65	53.82	296.60	52.93	298.25	47.30	154.70	152.03	44.89
TEMP	46.9	47.5	50.9	51.8	49.1	49.6	48.7	49.8	57.6	50.9
LAB ID										
LAB NUM	8694	8693	9790	9789	361	360	764	763	1227	1228
METHOD	3	3A	3	3A	3	3A	3	3A	3	3
AQUIF.LOC.	U	L	U	L	U	L	U	L	L	U
WET										
ALUMINUM	-0.100	-0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AMMONIA	0.200	-0.100	-0.100	-0.100	0.200	0.200	0.200	0.200	0.500	0.400
ARSENIC	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BICARBONAT	470.000	-0.100	450.000	-0.100	520.000	30.000	340.000	55.000	840.000	420.000
CADMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
CALCIUM	66.000	84.000	59.000	51.000	48.000	30.000	76.000	25.000	9.000	60.000
CARBONATE	-0.100	84.000	-0.100	30.000	-0.100	17.000	54.000	54.000	96.000	42.000
CHLORIDE	-1.000	18.000	14.000	17.000	12.000	15.000	14.000	6.900	14.000	21.000
CHROMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
COPPER	-0.010	-0.010	-0.010	-0.010	-0.100	-0.100	0.100	-0.100	-0.100	-0.100
FLUORIDE	0.160	0.140	0.300	0.400	0.200	0.300	0.200	0.300	13.000	0.200
HYDROXIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.220	0.890	1.600	0.550	3.000	0.600	7.900	1.700	1.700	8.200
LEAD	0.320	0.330	0.270	0.180	0.400	0.200	0.300	0.200	0.100	0.200
MAGNESIUM	74.000	2.100	81.000	3.200	73.000	21.000	70.000	46.000	12.000	86.000
MERCURY	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.002	-0.002
NITRATE	-0.100	-0.100	0.550	0.300	-0.100	-0.100	0.200	0.200	0.300	0.300
PHOSPHATE	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	0.200	-0.100
POTASSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
SIL DIOXID	30.000	32.000	17.000	17.000	30.000	9.600	17.000	9.400	16.000	33.000
SODIUM	130.000	155.000	120.000	86.000	190.000	130.000	140.000	140.000	430.000	150.000
SULFATE	315.000	315.000	290.000	230.000	360.000	355.000	370.000	275.000	65.000	300.000
SULFIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.020	0.010	0.170	0.110	0.100	-0.100	5.500	0.200	0.100	1.200
GROS ALPHA	0.0	0.0	0.0	0.100	2.900	2.000	3.100	86.000	1.500	6.500
GROSS BETA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.000	0.0	0.0
HARDNESS	470.000	220.000	480.000	140.000	420.000	160.000	475.000	250.000	72.000	505.000
PH	6.400	10.200	6.200	7.400	6.400	6.400	6.200	6.800	7.400	7.000
CONDUCTANC	1170.000	1010.000	1180.000	915.000	1260.000	810.000	1230.000	855.000	1557.000	1541.000
DIS SOLIDS	850.000	680.000	800.000	430.000	970.000	590.000	910.000	590.000	1070.000	910.000
MANGANESE	-0.050	-0.050	0.160	0.080	-0.050	-0.050	0.200	-0.050	-0.050	0.100
ALKALINITY	385.000	69.000	370.000	25.000	425.000	39.000	324.000	89.000	268.000	379.000
CYANIDE	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BORON	0.200	0.300	2.100	2.100	0.400	1.400	-0.010	0.200	0.900	1.600
BARIUM	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
SILVER	0.040	-0.010	0.050	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
NICKEL	0.030	0.030	0.020	0.030	0.010	0.030	0.010	-0.010	-0.010	0.010
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOC	0.0	0.0	7.000	8.000	7.000	9.000	8.000	6.000	0.0	0.0

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID CE 709

SAMPLES	1	2	3	4	5	6	7	8	9	10
SPECTROGRAPHIC										
ALUMINUM	0.100	5.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	0.100	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.0	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBALT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.001	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.200	0.050	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.0	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	99999.000	5.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANGANESE	0.100	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.010	0.050	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	0.500	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.0	0.300	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	5.000	20.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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09/26/75                                WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID CE 709                              PAGE  24

SAMPLES             1          2          3          4          5          6          7          8          9          10

STRONTIUM        0.0    99999.000     0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TANTALUM         0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TERBIUM          0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THALLIUM         0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THORIUM          0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THULIUM          0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TIN              0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TITANIUM         0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TUNGSTEN         0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
URANIUM          0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
VANADIUM         0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
YTTERBIUM        0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
YTTRIUM          0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC             0.0        0.010     0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZIRCONIUM        0.0        0.0       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
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JOB#-741-40 OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 149639.50 Y- 227281.60 Z- 7247.00
DATE DRILL CCMPL- 82474 DATE CCNV TO MCNITOR-111274 AQUIFER 1: 260.00- 450.00FT AQUIFER 2: 900.00-1230.00FT

SAMPLES	1	2	3	4	5	6	7	8	9	10	11	12
DATE	33175	33175	42675	42675	51575	51575	61075	61075	71775	71775	71775	71775
DEPTH	245.59	589.49	245.89	602.67	245.71	600.68	246.30	603.70	245.99	602.19	245.99	602.19
TEMP	51.8	57.6	53.6	59.0	54.5	60.8	53.4	59.5	55.4	64.4	56.3	60.8
LAB ID												
LAB NUM	8696	8695	9792	9791	363	362	766	765	1230	1231	1232	1229
METHOD	3	3A	3	3A	3	3A	3	3A	3	3	3	3A
AQUIF.LOC.	U	L	U	L	U	L	U	L	U	L	U	L
WET												
ALUMINUM	-0.100	-0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AMMONIA	0.0	0.0	0.550	0.250	0.200	0.400	0.200	0.400	0.300	0.600	0.200	0.400
ARSENIC	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BICARBONAT	445.000	400.000	440.000	340.000	490.000	380.000	400.000	305.000	450.000	1010.000	490.000	170.000
CADMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	0.100	0.010	-0.010	-0.010	-0.010	-0.010
CALCIUM	34.000	17.000	120.000	41.000	140.000	84.000	87.000	30.000	59.000	28.000	62.000	31.000
CARBONATE	-0.100	12.000	-0.100	24.000	-0.100	29.000	54.000	60.000	18.000	66.000	-0.100	66.000
CHLORIDE	8.300	-1.000	2.800	7.100	14.000	10.000	6.900	6.900	21.000	41.000	14.000	14.000
CHROMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
COPPER	-0.010	-0.010	-0.010	-0.010	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100
FLUORIDE	0.200	1.400	0.300	0.900	0.200	1.000	0.200	1.200	0.200	17.000	0.300	1.000
HYDROXIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.230	0.650	5.000	1.000	4.800	0.900	8.500	5.700	8.600	0.800	8.200	4.000
LEAD	0.060	0.050	-0.010	0.140	0.070	0.070	0.080	0.100	0.200	0.100	0.200	0.090
MAGNESIUM	54.000	46.000	38.000	34.000	46.000	15.000	50.000	38.000	54.000	23.000	48.000	38.000
MERCURY	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.002	-0.002	-0.002	-0.002
NITRATE	-0.100	-0.100	0.300	0.800	0.100	0.400	0.200	1.000	0.300	0.500	0.400	0.500
PHOSPHATE	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100
POTASSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
SIL DIOXID	32.000	20.000	32.000	22.000	32.000	19.000	35.000	19.000	46.000	16.000	36.000	21.000
SODIUM	160.000	150.000	110.000	145.000	140.000	150.000	155.000	160.000	195.000	480.000	190.000	95.000
SULFATE	225.000	165.000	285.000	160.000	350.000	180.000	275.000	155.000	290.000	145.000	280.000	165.000
SULFIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	-0.010	0.010	0.170	0.570	-0.100	0.400	3.600	0.700	0.100	0.200	0.200	0.200
GROS ALPHA	0.0	0.0	0.0	0.0	8.900	4.000	5.400	2.400	4.000	8.700	3.300	1.500
GROSS BETA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARDNESS	310.000	230.000	455.000	245.000	540.000	270.000	465.000	230.000	370.000	185.000	350.000	230.000
PH	6.400	6.200	6.400	6.700	7.000	6.800	6.400	6.400	6.800	7.200	6.800	6.900
CONDUCTANC	1110.000	795.000	1390.000	980.000	1210.000	890.000	1375.000	900.000	1216.000	1955.000	1219.000	960.000
DIS SOLIDS	730.000	610.000	810.000	600.000	970.000	670.000	870.000	630.000	910.000	1320.000	880.000	520.000
MANGANESE	0.300	0.220	0.170	0.060	-0.050	-0.050	0.200	0.050	0.100	-0.050	0.100	0.070
ALKALINITY	365.000	334.800	360.000	300.000	400.000	334.000	369.000	299.000	365.000	879.000	400.000	194.000
CYANIDE	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BORON	0.300	0.200	0.100	2.300	3.200	1.300	0.200	0.100	0.200	1.200	0.700	0.020
BARIUM	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-0.100	-1.000
SILVER	0.100	0.110	-0.010	0.030	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
NICKEL	0.020	0.020	0.010	-0.010	0.020	0.010	0.020	0.020	0.010	-0.010	0.030	-0.010
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOC	0.0	0.0	5.000	2.000	10.000	3.000	4.000	3.000	0.0	0.0	0.0	0.0

RBOSP PROGRESS REPORT

SAMPLES	1	2	3	4	5	6	7	8	9	10	11	12
SPECTROGRAPHIC												
ALUMINUM	0.100	0.100	0.500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	0.200	0.100	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBALT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.010	0.010	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.200	0.200	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.050	0.010	0.200	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MANGANESE	0.0	0.0	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.0	0.0	0.020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	0.500	0.500	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.0	0.0	0.0	0.0	0.800	0.0	0.200	0.0	0.0	0.0	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	10.000	10.000	20.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-1

SAMPLES	1	2	3	4	5	6	7	8	9	10	11	12
STRONTIUM	0.100	0.100	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.0	0.0	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.100	0.020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB#-741-40 OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 154518.60 Y- 229396.90 Z- 6876.00
DATE DRILL COMPL- 81074 DATE CONV TO MONITOR-111174 AQUIFER 1: 180.00- 470.00FT AQUIFER 2: 920.00-1200.00FT

SAMPLES	1	2	3	4	5	6	7	8
DATE	42975	42975	51875	51875	61075	61075	71275	71275
DEPTH	112.22	261.65	110.91	251.47	111.20	255.60	252.52	107.45
TEMP	51.8	59.9	51.8	57.9	52.2	57.9	62.6	58.1
LAB ID								
LAB NUM	9795	9793	365	364	768	767	1233	1234
METHOD	3	3A	3	3A	3	3A	3	3A
AQUIF.LOC.	U	L	U	L	U	L	L	U
WET								
ALUMINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AMMONIA	-0.100	-0.100	0.200	0.100	0.100	0.200	0.400	0.200
ARSENIC	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BICARBONAT	445.000	400.000	480.000	460.000	285.000	355.000	1320.000	415.000
CADMIUM	-0.010	-0.010	-0.010	-0.010	0.010	-0.010	-0.010	-0.010
CALCIUM	35.000	20.000	95.000	59.000	24.000	9.800	5.700	21.000
CARBONATE	54.000	48.000	43.000	63.000	115.000	115.000	60.000	48.000
CHLORIDE	8.600	2.800	14.000	14.000	6.900	-1.000	27.000	6.900
CHROMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
COPPER	-0.010	-0.010	-0.100	-0.010	-0.100	0.100	0.100	-0.100
FLUORIDE	0.400	4.800	0.400	3.000	0.800	8.000	11.000	0.400
HYDROXIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	2.100	1.100	2.000	3.500	3.500	4.100	2.400	3.100
LEAD	0.100	0.060	0.070	0.200	0.100	0.200	0.600	0.100
MAGNESIUM	77.000	51.000	40.000	25.000	79.000	43.000	8.200	77.000
MERCURY	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.002	-0.002
NITRATE	0.400	0.400	-0.100	0.700	0.400	0.200	0.200	0.400
PHOSPHATE	-0.100	-0.100	-0.100	-0.010	-0.100	-0.100	-0.100	-0.100
POTASSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
SIL DIOXID	14.000	5.200	13.000	4.300	11.000	4.200	11.000	13.000
SODIUM	195.000	170.000	210.000	220.000	175.000	205.000	580.000	150.000
SULFATE	300.000	215.000	340.000	220.000	265.000	115.000	50.000	250.000
SULFIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	1.000	0.760	1.100	1.600	3.400	2.000	0.500	0.800
GROS ALPHA	1.300	0.0	1.000	2.200	5.800	1.800	6.100	0.0
GROSS BETA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARDNESS	405.000	260.000	400.000	250.000	385.000	200.000	48.000	370.000
PH	6.400	6.600	7.400	6.800	7.000	7.400	7.400	7.400
CONDUCTANC	1290.000	1180.000	970.000	1260.000	1260.000	1150.000	1013.000	1302.000
DIS SOLIDS	1150.000	710.000	990.000	840.000	820.000	680.000	1400.000	770.000
MANGANESE	0.060	-0.050	-0.050	-0.050	0.070	0.070	-0.050	0.050
ALKALINITY	409.000	369.000	425.000	432.000	328.000	383.000	1129.000	379.000
CYANIDE	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BORON	0.120	3.300	-0.010	-0.010	0.300	0.200	1.100	0.500
BARIUM	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-0.100
SILVER	0.030	0.020	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
NICKEL	0.020	0.010	0.030	-0.010	0.020	-0.010	0.020	0.010
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOC	6.000	5.000	9.000	9.000	9.000	6.000	0.0	0.0

NNN-J23-0000

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SAMPLES              1          2          3          4          5          6          7          8


SPECTROGRAPHIC

ALUMINUM           0.100      0.100      0.0        0.0        0.0        0.0        0.0        0.0
ANTIMONY           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ARSENIC            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BARIUM             0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BERYLIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BISMUTH            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BORON              0.100      0.100      0.0        0.0        0.0        0.0        0.0        0.0
CADMIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CALCIUM        99999.000  99999.000      0.0        0.0        0.0        0.0        0.0        0.0
CERIUM             0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CESIUM             0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CHROMIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COBOLT             0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COLUMBIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COPPER             0.001      0.001      0.0        0.0        0.0        0.0        0.0        0.0
DYSPROSIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ERBIUM             0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
EUROPIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GADOLINIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GALLIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GERMANIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GOLD               0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HAFNIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HOLMIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
INDIUM             0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRIDIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON               0.050      0.010      0.0        0.0        0.0        0.0        0.0        0.0
LANTHANUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LEAD               0.010      0.001      0.0        0.0        0.0        0.0        0.0        0.0
LITHIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LUTETIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MAGNESIUM      99999.000  99999.000      0.0        0.0        0.0        0.0        0.0        0.0
MANGANESE          0.100      0.200      0.0        0.0        0.0        0.0        0.0        0.0
MERCURY            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MOLYBDENUM         0.010      0.010      0.0        0.0        0.0        0.0        0.0        0.0
NEODYMIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
NICKEL             0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
OSMIUM             0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PALLADIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PLATINUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
POTASSIUM          0.100      0.100      0.0        0.0        0.0        0.0        0.0        0.0
PRASEODYMI         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RADIUM             0.0        0.0        0.0        0.0        0.100      0.0        0.0        0.0
RHENIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHODIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUBIDIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUTHENIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SAMARIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SCANDIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SILICON           10.000     10.000      0.0        0.0        0.0        0.0        0.0        0.0
SILVER             0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SODIUM         99999.000  99999.000      0.0        0.0        0.0        0.0        0.0        0.0
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RBOSP PROGRESS REPORT

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-2-3

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SAMPLES             1          2          3          4          5          6          7          8

STRONTIUM        0.100      0.100      0.0        0.0        0.0        0.0        0.0        0.0
TANTALUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TERBIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THALLIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THORIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THULIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TIN              0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TITANIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TUNGSTEN         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
URANIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
VANADIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
YTTERBIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
YTTRIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC             0.010      0.010      0.0        0.0        0.0        0.0        0.0        0.0
ZIRCONIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
```

JOB#-741-40 OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 160240.80 Y- 228513.90 Z- 6719.00
DATE DRILL COMPL- 90174 DATE CONV TO MONITOR-111574 AQUIFER 1: 220.00- 650.00FT AQUIFER 2: 1050.00-1400.00FT

SAMPLES	1	2	3	4	5	6
DATE	32275	32275	33175	33175	71475	71475
DEPTH	74.77	82.13	74.90	82.73	96.39	75.70
TEMP	52.7	52.7	0.0	0.0	62.6	58.1
LAB ID						
LAB NUM	8311	8310	8698	8697	1235	1236
METHOD	3	3A	3	3A	3	3
AQUIF.LOC.	U	L	U	L	L	U
WET						
ALUMINUM	0.590	0.080	-0.100	-0.100	0.0	0.0
AMMONIA	1.800	0.700	0.200	0.300	0.600	0.500
ARSENIC	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BICARBONAT	510.000	2365.000	605.000	480.000	1530.000	450.000
CADMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
CALCIUM	16.000	3.300	28.000	26.000	11.000	18.000
CARBONATE	-0.100	170.000	-0.100	24.000	60.000	18.000
CHLORIDE	-1.000	49.000	9.700	6.900	18.000	9.600
CHROMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
COPPER	-0.010	-0.010	-0.010	-0.010	0.100	-0.100
FLUORIDE	60.000	50.000	0.480	2.400	14.000	2.000
HYDROXIDE	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.070	-0.050	0.150	-0.050	3.000	5.900
LEAD	0.010	0.040	0.630	0.160	0.200	0.060
MAGNESIUM	22.000	3.800	90.000	94.000	13.000	26.000
MERCURY	-0.010	-0.010	-0.010	-0.010	-0.002	-0.002
NITRATE	0.150	0.190	-0.100	-0.100	0.200	0.200
PHOSPHATE	0.090	0.430	-0.100	-0.100	-0.100	-0.100
POTASSIUM	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
SIL DIOXID	12.000	6.500	24.000	12.000	11.000	20.000
SODIUM	340.000	1100.000	190.000	110.000	675.000	265.000
SULFATE	280.000	-4.000	320.000	225.000	140.000	255.000
SULFIDE	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.180	0.340	1.400	1.900	0.100	0.200
GROS ALPHA	4.700	15.000	0.0	0.0	2.000	0.800
GROSS BETA	0.0	0.0	0.0	0.0	0.0	0.0
HARDNESS	130.000	24.000	440.000	330.000	80.000	150.000
PH	6.800	7.600	8.100	8.300	7.400	7.100
CONDUCTANC	1425.000	3950.000	1480.000	1240.000	2242.000	1240.000
DIS SOLIDS	980.000	2540.000	960.000	730.000	1690.000	840.000
MANGANESE	0.060	-0.050	0.520	0.050	-0.050	0.220
ALKALINITY	420.000	2080.000	495.000	410.000	1299.000	385.000
CYANIDE	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BORON	0.100	2.100	1.200	2.000	0.800	0.200
BARIUM	-1.000	-1.000	-1.000	-1.000	-0.100	-1.000
SILVER	-0.010	-0.010	0.080	0.100	-0.010	-0.010
NICKEL	-0.010	0.020	0.030	0.020	0.020	0.010
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0
TOC	0.0	0.0	0.0	0.0	0.0	0.0

RBOSP FR [illegible]

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SAMPLES             1          2          3          4          5          6


SPECTROGRAPHIC

ALUMINUM        0.100      0.050      0.010      0.010      0.0        0.0
ANTIMONY        0.0        0.0        0.0        0.0        0.0        0.0
ARSENIC         0.0        0.0        0.0        0.0        0.0        0.0
BARIUM          0.0        0.0        0.0        0.0        0.0        0.0
BERYLIUM        0.0        0.0        0.0        0.0        0.0        0.0
BISMUTH         0.0        0.0        0.0        0.0        0.0        0.0
BORON           0.500      0.500      0.500      0.500      0.0        0.0
CADMIUM         0.0        0.0        0.0        0.0        0.0        0.0
CALCIUM     99999.000      5.000  99999.000  99999.000      0.0        0.0
CERIUM          0.0        0.0        0.0        0.0        0.0        0.0
CESIUM          0.0        0.0        0.0        0.0        0.0        0.0
CHROMIUM        0.0        0.0        0.0        0.0        0.0        0.0
COBOLT          0.0        0.0        0.0        0.0        0.0        0.0
COLUMBIUM       0.0        0.0        0.0        0.0        0.0        0.0
COPPER          0.010      0.001      0.010      0.0        0.0        0.0
DYSPROSIUM      0.0        0.0        0.0        0.0        0.0        0.0
ERBIUM          0.0        0.0        0.0        0.0        0.0        0.0
EUROPIUM        0.0        0.0        0.0        0.0        0.0        0.0
GADOLINIUM      0.0        0.0        0.0        0.0        0.0        0.0
GALLIUM         0.0        0.0        0.0        0.0        0.0        0.0
GERMANIUM       0.0        0.0        0.0        0.0        0.0        0.0
GOLD            0.0        0.0        0.0        0.0        0.0        0.0
HAFNIUM         0.0        0.0        0.0        0.0        0.0        0.0
HOLMIUM         0.0        0.0        0.0        0.0        0.0        0.0
INDIUM          0.0        0.0        0.0        0.0        0.0        0.0
IRIDIUM         0.0        0.0        0.0        0.0        0.0        0.0
IRON            0.100      0.050      0.100      0.100      0.0        0.0
LANTHANUM       0.0        0.0        0.0        0.0        0.0        0.0
LEAD            0.0        0.0        0.010      0.0        0.0        0.0
LITHIUM         0.0        0.0        0.0        0.0        0.0        0.0
LUTETIUM        0.0        0.0        0.0        0.0        0.0        0.0
MAGNESIUM   99999.000      5.000  99999.000  99999.000      0.0        0.0
MANGANESE       0.100      0.050      0.0        0.0        0.0        0.0
MERCURY         0.0        0.0        0.0        0.0        0.0        0.0
MOLYBDENUM      0.001      0.0        0.010      0.010      0.0        0.0
NEODYMIUM       0.0        0.0        0.0        0.0        0.0        0.0
NICKEL          0.0        0.0        0.0        0.0        0.0        0.0
OSMIUM          0.0        0.0        0.0        0.0        0.0        0.0
PALLADIUM       0.0        0.0        0.0        0.0        0.0        0.0
PLATINUM        0.0        0.0        0.0        0.0        0.0        0.0
POTASSIUM       1.000      2.000      0.100      0.100      0.0        0.0
PRASEODYMI      0.0        0.0        0.0        0.0        0.0        0.0
RADIUM          0.100      0.500      0.0        0.100      0.0        0.0
RHENIUM         0.0        0.0        0.0        0.0        0.0        0.0
RHODIUM         0.0        0.0        0.0        0.0        0.0        0.0
RUBIDIUM        0.0        0.0        0.0        0.0        0.0        0.0
RUTHENIUM       0.0        0.0        0.0        0.0        0.0        0.0
SAMARIUM        0.0        0.0        0.0        0.0        0.0        0.0
SCANDIUM        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM        0.0        0.0        0.0        0.0        0.0        0.0
SILICON         5.000      5.000     10.000      5.000      0.0        0.0
SILVER         -0.001      0.001      0.0        0.0        0.0        0.0
SODIUM          2.000  99999.000  99999.000  99999.000      0.0        0.0
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RBOSP PROGRESS REPORT

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-4-5

SAMPLES	1	2	3	4	5	6
STRONTIUM	0.100	0.100	0.100	0.100	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.010	0.001	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.0	0.0	0.010	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0	0.0	0.0	0.0

09/26/75

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-6

JOB#-741-40 OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 163932.70 Y- 226189.30 Z- 6659.00
DATE DRILL COMPL- 72374 DATE CONV TO MONITOR-112274 AQUIFER 1: 180.00- 630.00FT AQUIFER 2: 1300.00-1780.00FT

SAMPLES	1	2	3	4	5	6	7	8	9	10
DATE	32975	32975	42875	42875	51775	51775	61075	61075	71375	71375
DEPTH	54.47	28.05	54.93	48.40	41.42	54.46	46.20	57.30	42.70	55.16
TEMP	48.0	46.9	48.2	50.0	49.6	49.6	48.7	48.9	60.8	58.6
LAB ID										
LAB NUM	8776	8699	9799	9798	366	367	769	770	1237	1238
METHOD	3	3	3	3	3	3	3	3	3	3
AQUIF.LOC.	U	L	U	L	L	U	L	U	L	U
WET										
ALUMINUM	-0.100	-0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AMMONIA	0.200	0.300	-0.100	1.000	0.900	0.200	0.600	0.200	1.000	0.700
ARSENIC	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	0.030	0.040
BICARBONAT	530.000	1620.000	530.000	1540.000	1560.000	550.000	1990.000	455.000	2780.000	480.000
CADMIUM	-0.010	-0.010	-0.010	0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
CALCIUM	16.000	9.000	20.000	0.800	5.700	23.000	9.000	16.000	6.600	15.000
CARBONATE	42.000	260.000	30.000	290.000	330.000	75.000	250.000	72.000	60.000	72.000
CHLORIDE	4.200	53.000	5.700	57.000	41.000	21.000	64.000	6.900	64.000	14.000
CHROMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
COPPER	-0.010	-0.010	-0.010	0.040	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100
FLUORIDE	5.000	20.000	3.900	2.600	22.000	3.200	24.000	4.000	30.000	3.700
HYDROXIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	1.700	1.700	1.400	2.800	3.100	1.400	4.700	2.900	2.600	2.700
LEAD	0.090	0.200	0.090	0.200	0.200	0.040	0.100	0.080	0.200	0.060
MAGNESIUM	26.000	3.300	23.000	9.300	8.200	23.000	5.200	21.000	5.700	29.000
MERCURY	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.002	-0.002
NITRATE	0.100	0.200	0.600	0.100	-0.100	-0.100	1.500	0.200	1.100	0.500
PHOSPHATE	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	1.000	-0.100	0.400
POTASSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
SIL DIOXID	31.000	10.000	19.000	5.500	5.800	36.000	9.400	15.000	16.000	22.000
SODIUM	205.000	840.000	225.000	700.000	870.000	250.000	1030.000	200.000	1130.000	220.000
SULFATE	28.000	16.000	105.000	60.000	40.000	30.000	25.000	20.000	100.000	45.000
SULFIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.200	0.800	1.000	1.100	3.500	0.400	0.900	1.800	0.200	0.100
GROS ALPHA	0.0	0.0	0.0	0.0	9.100	3.700	3.800	1.100	4.000	3.600
GROSS BETA	0.0	0.0	0.0	0.0	0.0	0.0	3.000	0.0	18.000	0.0
HARDNESS	150.000	36.000	145.000	40.000	48.000	150.000	44.000	125.000	40.000	155.000
PH	7.600	8.900	7.000	8.000	8.000	7.600	8.900	7.400	7.400	8.000
CONDUCTANC	940.000	2570.000	955.000	3400.000	2930.000	960.000	3620.000	950.000	3900.000	1107.000
DIS SOLIDS	620.000	1920.000	690.000	1880.000	2090.000	730.000	2400.000	680.000	2780.000	660.000
MANGANESE	0.550	-0.050	0.180	0.070	-0.050	0.100	0.100	0.200	-0.050	-0.050
ALKALINITY	469.000	1565.000	460.000	1500.000	4500.000	511.000	1835.000	434.000	2329.000	454.000
CYANIDE	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	0.030	-0.010	-0.010	-0.010
BORON	0.600	2.000	1.800	2.600	1.900	-0.010	3.900	-0.010	3.100	0.400
BARIUM	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
SILVER	0.040	0.100	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
NICKEL	-0.010	0.040	0.010	0.030	0.030	-0.010	0.050	0.020	0.030	0.030
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOC	0.0	0.0	4.000	13.000	15.000	5.000	12.000	3.000	0.0	0.0

NNN-J23-0000

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-6

SAMPLES	1	2	3	4	5	6	7	8	9	10
SPECTROGRAPHIC										
ALUMINUM	0.050	0.100	0.010	0.100	0.0	0.0	0.0	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	0.200	0.100	0.100	0.100	0.0	0.0	0.0	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	99999.000	10.000	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBOLT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.001	0.010	0.001	0.001	0.0	0.0	0.0	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.200	0.100	0.050	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.0	0.001	0.010	0.010	0.0	0.0	0.0	0.0	0.0	0.0
LITHIUM	0.0	0.0	0.0	0.100	0.0	0.0	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	99999.000	10.000	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0
MANGANESE	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.001	0.020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	2.000	0.050	0.100	0.100	0.0	0.0	0.0	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.0	0.400	0.0	0.0	0.300	0.0	0.0	0.0	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	5.000	10.000	20.000	5.000	0.0	0.0	0.0	0.0	0.0	0.0
SILVER	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	99999.000	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0

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SAMPLES            1        2        3        4        5        6        7        8        9       10

STRONTIUM      1.000    0.050    0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TANTALUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TERBIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THALLIUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THORIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THULIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TIN            0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TITANIUM       0.010    0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TUNGSTEN       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
URANIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
VANADIUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
YTTERBIUM      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
YTTRIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
ZINC           0.0      0.0      0.010    0.0      0.0      0.0      0.0      0.0      0.0      0.0
ZIRCONIUM      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
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JOB#-741-40         OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 152484.10 Y- 221430.60 Z-    7268.00
DATE DRILL CCMPL- 72074  DATE CCNV TO MCNITOR- 82674  AQUIFER 1:  400.00- 720.00FT  AQUIFER 2: 1060.00-1460.00FT


SAMPLES             1          2          3          4          5

DATE            33075      42475      51775      61075      71275
DEPTH          630.67     653.28     645.73     652.50     647.31
TEMP             58.8       60.4       61.0       60.8       64.4
LAB ID
LAB NUM          8883       9800        368        771       1239
METHOD             3A         3A         3A         3A          3
AQUIF.LOC.          L          L          L          L          L

WET

ALUMINUM       -0.100     0.0        0.0        0.0        0.0
AMMCNIA         0.0        2.100      1.800      0.900      0.700
ARSENIC        -0.010     -0.010     -0.010     -0.010     -0.010
BICARBCNAT     -0.100     -0.100     -0.100     -0.100    720.000
CADMIUM        -0.010      0.010     -0.010      0.010     -0.010
CALCIUM       515.000    510.000    500.000    450.000    115.000
CARBONATE    3160.000     70.000     -0.100     -0.100    380.000
CHLORIDE       94.000     81.000     48.000     55.000     51.000
CHRCMIUM       -0.010     -0.010     -0.010     -0.010     -0.010
COPPER          0.120      0.020     -0.100     -0.100     -0.100
FLUCRIDE       -0.050      0.900      1.000      1.200     26.000
HYDROXIDE       0.0      890.000    880.000      0.0        0.0
IRCN            0.700      0.190      0.900      0.400      1.600
LEAD            1.400      0.270      0.400      0.100      0.100
MAGNESIUM      -1.000     -1.000      2.400     -1.000      7.900
MERCURY        -0.010     -0.010     -0.010     -0.010     -0.002
NITRATE         0.500      0.300      0.100      0.400      0.200
PHCSPHATE      -0.100     -0.100     -0.100     -0.100     -0.100
POTASSIUM       0.0        0.0        0.0        0.0        0.0
SELENIUM       -0.010     -0.010     -0.001     -0.010     -0.010
SIL DIOXID     -0.100     11.000      1.200      2.800     16.000
SODIUM       1850.000    680.000    650.000    480.000    510.000
SULFATE        26.000     -4.000     10.000    -10.000     35.000
SULFIDE         0.0        0.0        0.0        0.0        0.0
ZINC            0.190      0.050     -0.100      0.100      0.100
GROS ALPHA      0.0        0.0        3.700      7.500      7.500
GROSS BETA      0.0        0.0        0.0        0.0        8.000
HARDNESS      950.000   1040.000   1260.000   1120.000    320.000
PH             12.200      8.000      8.000     12.200     11.000
CCNDUCTANC  12000.000   1380.000   9200.000  11000.000   4140.000
DIS SCLIDS   5130.000   5730.000   2090.000   1800.000   1460.000
MANGANESE      -0.050      0.010     -0.050     -0.050     -0.050
ALKALINITY   2595.000    793.000    720.000    610.000    900.000
CYANIDE        -0.010     -0.010     -0.010     -0.010     -0.010
BCRCN          -0.100     25.000     -0.010      0.500      1.900
BARIUM         -1.000     -1.000     -1.000     -1.000     -1.000
SILVER         -0.010     -0.010     -0.010     -0.010     -0.010
NICKEL          0.060      0.050     -0.010      0.050      0.040
LITHIUM         0.0        0.0        0.0        0.0        0.0
TOC             0.0        6.000     14.000      1.000      0.0
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SAMPLES              1           2          3          4          5


SPECTROGRAPHIC

ALUMINUM         0.050       0.100      0.0        0.0        0.0
ANTIMONY         0.0         0.0        0.0        0.0        0.0
ARSENIC          0.0         0.0        0.0        0.0        0.0
BARIUM           0.001       0.050      0.0        0.0        0.0
BERYLLIUM        0.0         0.0        0.0        0.0        0.0
BISMUTH          0.0         0.0        0.0        0.0        0.0
BORON            0.100       0.100      0.0        0.0        0.0
CADMIUM          0.0         0.0        0.0        0.0        0.0
CALCIUM          0.0     99999.000      0.0        0.0        0.0
CERIUM           0.0         0.0        0.0        0.0        0.0
CESIUM           0.0         0.0        0.0        0.0        0.0
CHROMIUM         0.0         0.0        0.0        0.0        0.0
COBALT           0.0         0.0        0.0        0.0        0.0
COLUMBIUM        0.0         0.0        0.0        0.0        0.0
COPPER           0.010       0.0        0.0        0.0        0.0
DYSPROSIUM       0.0         0.0        0.0        0.0        0.0
ERBIUM           0.0         0.0        0.0        0.0        0.0
EUROPIUM         0.0         0.0        0.0        0.0        0.0
GADOLINIUM       0.0         0.0        0.0        0.0        0.0
GALLIUM          0.0         0.0        0.0        0.0        0.0
GERMANIUM        0.0         0.0        0.0        0.0        0.0
GOLD             0.0         0.0        0.0        0.0        0.0
HAFNIUM          0.0         0.0        0.0        0.0        0.0
HOLMIUM          0.0         0.0        0.0        0.0        0.0
INDIUM           0.0         0.0        0.0        0.0        0.0
IRIDIUM          0.0         0.0        0.0        0.0        0.0
IRON             0.100       0.100      0.0        0.0        0.0
LANTHANUM        0.0         0.0        0.0        0.0        0.0
LEAD             0.0         0.0        0.0        0.0        0.0
LITHIUM          0.0         0.0        0.0        0.0        0.0
LUTETIUM         0.0         0.0        0.0        0.0        0.0
MAGNESIUM    99999.000   99999.000      0.0        0.0        0.0
MANGANESE        0.0         0.100      0.0        0.0        0.0
MERCURY          0.0         0.0        0.0        0.0        0.0
MOLYBDENUM       0.001       0.050      0.0        0.0        0.0
NEODYMIUM        0.0         0.0        0.0        0.0        0.0
NICKEL           0.0         0.0        0.0        0.0        0.0
OSMIUM           0.0         0.0        0.0        0.0        0.0
PALLADIUM        0.0         0.0        0.0        0.0        0.0
PLATINUM         0.0         0.0        0.0        0.0        0.0
POTASSIUM        2.000       5.000      0.0        0.0        0.0
PRASEODYMI       0.0         0.0        0.0        0.0        0.0
RADIUM           0.0         0.0        0.0        1.400      0.0
RHENIUM          0.0         0.0        0.0        0.0        0.0
RHODIUM          0.0         0.0        0.0        0.0        0.0
RUBIDIUM         0.0         0.0        0.0        0.0        0.0
RUTHENIUM        0.0         0.0        0.0        0.0        0.0
SAMARIUM         0.0         0.0        0.0        0.0        0.0
SCANDIUM         0.0         0.0        0.0        0.0        0.0
SELENIUM         0.0         0.0        0.0        0.0        0.0
SILICON         10.000      10.000      0.0        0.0        0.0
SILVER           0.000       0.0        0.0        0.0        0.0
SODIUM       99999.000   99999.000      0.0        0.0        0.0
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RBOSP [illegible]

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SAMPLES            1          2          3          4          5

STRONTIUM        0.0        0.100      0.0        0.0        0.0
TANTALUM         0.0        0.0        0.0        0.0        0.0
TERBIUM          0.0        0.0        0.0        0.0        0.0
THALLIUM         0.0        0.0        0.0        0.0        0.0
THORIUM          0.0        0.0        0.0        0.0        0.0
THULIUM          0.0        0.0        0.0        0.0        0.0
TIN              0.0        0.0        0.0        0.0        0.0
TITANIUM         0.005      0.0        0.0        0.0        0.0
TUNGSTEN         0.0        0.0        0.0        0.0        0.0
URANIUM          0.0        0.0        0.0        0.0        0.0
VANADIUM         0.0        0.0        0.0        0.0        0.0
YTTERBIUM        0.0        0.0        0.0        0.0        0.0
YTTRIUM          0.0        0.0        0.0        0.0        0.0
ZINC             0.010      0.0        0.0        0.0        0.0
ZIRCONIUM        0.0        0.0        0.0        0.0        0.0
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                   WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-9

JOB#-741-40         OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 155213.00 Y- 223771.80 Z-    7132.00
DATE DRILL COMPL- 91274  DATE CONV TO MONITOR- 10275  AQUIFER 1:  410.00- 610.00FT  AQUIFER 2: 1070.00-1240.00FT


SAMPLES             1          2          3          4          5          6          7          8          9         10

DATE            33175      33175      42675      42675      51575      51575      61275      61275      71275      71275
DEPTH          322.94     494.46     323.39     516.74     323.24     509.66     323.80     514.30     510.94     316.95
TEMP             52.7       53.8       53.6       55.4       54.5       56.1       54.0       55.7       62.6       65.3
LAB ID
LAB NUM          8778       8777       9802       9801        370        369        773        772       1240       1241
METHOD              3         3A          3         3A          3         3A          3         3A          3          3
AQUIF.LOC.          U          L          U          L          U          L          U          L          L          U

WET

ALUMINUM       -0.100     -0.100      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
AMMONIA         0.400      0.200      0.200      0.120      0.200      0.300      0.300      0.300      0.700      0.400
ARSENIC        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010      0.020
BICARBONAT    760.000    420.000    205.000    300.000    760.000    420.000    700.000    390.000   1090.000    630.000
CADMIUM        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
CALCIUM       145.000     36.000    135.000     20.000    200.000     29.000    160.000     18.000      6.600    115.000
CARBONATE      -0.100     -0.100     -0.100     66.000     -0.100     46.000     -0.100     54.000     48.000     -0.100
CHLORIDE       15.000     17.000     14.000     19.000     21.000     17.000     11.000     11.000     21.000      9.600
CHROMIUM       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
COPPER         -0.010     -0.010      0.020      0.020     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100
FLUORIDE        0.400      1.000      0.400      2.100      0.300      2.300      0.400      2.900     19.000      0.400
HYDROXIDE       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON            3.000      0.730      5.000      0.730      4.200      1.700      7.900      2.500      1.300      8.400
LEAD            0.020      0.030      0.200      0.150      0.400      0.600      0.100      0.200      0.040      0.100
MAGNESIUM      50.000     59.000     50.000     43.000     17.000     29.000     53.000     25.000     11.000     62.000
MERCURY        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.002     -0.002
NITRATE         0.200      0.200      0.300      0.300     -0.100      0.200      0.200      0.200      0.200      1.600
PHOSPHATE      -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100      0.100     -0.100
POTASSIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
SIL DIOXID     56.000      7.200     53.000      7.100     51.000      3.500     49.000      4.800      8.700     48.000
SODIUM        265.000    155.000    120.000    165.000    270.000    190.000    205.000    160.000    520.000    240.000
SULFATE       400.000    290.000    500.000    185.000    400.000    150.000    320.000     95.000     55.000    460.000
SULFIDE         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC            0.100      0.100      0.120      0.110      0.800     -0.100     15.000      0.600     -0.100      0.300
GROS ALPHA      0.0        0.0        6.600      0.0        8.300      3.500     11.000      0.0        5.800      5.200
GROSS BETA      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HARDNESS      565.000    330.000    550.000    230.000    570.000    190.000    625.000    150.000     60.000    545.000
PH              6.600      6.400      6.600      7.200      6.800      7.400      6.400      7.100      7.300      7.000
CONDUCTANC   1510.000   1010.000   1100.000   1100.000   1640.000    970.000   1650.000    960.000   1711.000   1311.000
DIS SOLIDS   1310.000    770.000    980.000    650.000   1310.000    630.000   1150.000    560.000   1240.000   1250.000
MANGANESE       0.230      0.110      0.150     -0.050      0.100     -0.050      0.300     -0.050     -0.050     -0.050
ALKALINITY    625.000    345.000    170.000    299.000    710.000    378.000    575.000    364.000    929.000    515.000
CYANIDE        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
BORON           0.500      0.400     -0.100      0.100     -0.010     -0.010     -0.010      0.200      0.800      0.100
BARIUM         -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000
SILVER          0.040      0.020      0.020     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
NICKEL         -0.010     -0.010      0.030      0.010      0.020     -0.010      0.030      0.020      0.030      0.040
LITHIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TOC             0.0        0.0        3.000      6.000     13.000     15.000     34.000      3.000      0.0        0.0
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RBOSP [illegible]

SAMPLES	1	2	3	4	5	6	7	8	9	10
SPECTROGRAPHIC										
ALUMINUM	0.100	0.100	0.100	0.050	0.0	0.0	0.0	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	1.000	2.000	0.100	0.500	0.0	0.0	0.0	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	99999.000	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBOLT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.010	0.020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.100	0.100	0.050	0.500	0.0	0.0	0.0	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	99999.000	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0
MANGANESE	0.010	0.010	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.0	0.001	0.0	0.010	0.0	0.0	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	1.000	1.000	0.100	0.500	0.0	0.0	0.0	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.0	0.0	0.0	0.0	0.200	0.0	0.200	0.0	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	2.000	5.000	10.000	20.000	0.0	0.0	0.0	0.0	0.0	0.0
SILVER	0.0	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	99999.000	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0

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SAMPLES           1        2        3        4        5        6        7        8        9        10

STRONTIUM      0.500    1.000    0.0      0.100    0.0      0.0      0.0      0.0      0.0      0.0
TANTALUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TERBIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THALLIUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THORIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THULIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TIN            0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TITANIUM       0.010    0.010    0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TUNGSTEN       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
URANIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
VANADIUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
YTTERBIUM      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
YTTRIUM        0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
ZINC           0.0      0.010    0.200    0.0      0.0      0.0      0.0      0.0      0.0      0.0
ZIRCONIUM      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
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RBOSP [illegible]

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JOB#-741-40         OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 162483.60 Y- 221691.80 Z-    7006.00
DATE DRILL CCMPL-100174  DATE CONV TO MONITOR-111674  AQUIFER 1:  640.00- 820.00FT  AQUIFER 2: 1380.00-1600.00FT


SAMPLES            1          2          3          4          5          6          7          8          9         10

DATE           33175      33175      42775      42775      50975      50975      61175      61175      71375      71375
DEPTH         371.74     341.20     341.09     393.92     341.76     389.30     391.90     344.50     387.65     341.05
TEMP            52.7       52.7       55.4       55.4       55.4       65.4       55.4       56.3       59.0       55.4
LAB ID
LAB NUM         8779       8780       9804       9803       9924       9923        774        775       1242       1243
METHOD             3          3          3          3          3          3          3          3          3          3
AQUIF.LCC.         L          U          U          L          U          L          L          U          L          U

WET

ALUMINUM      -0.100     -0.100      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
AMMONIA        0.0        0.0        0.370     -0.100      0.400      0.120      0.300      0.600      0.600      0.500
ARSENIC       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
BICARBCNAT  1025.000    870.000    925.000    935.000    880.000   1070.000   1010.000    730.000   1340.000    830.000
CADMIUM       -0.010     -0.010     -0.010     -0.010      0.020      0.010     -0.010     -0.010     -0.010     -0.010
CALCIUM       98.000    170.000    175.000     62.000    260.000     98.000     45.000    190.000     15.000    130.000
CARBONATE     -0.100     -0.100     -0.100     54.000     -0.100      5.800     48.000     48.000     42.000     -0.100
CHLORIDE      24.000     15.000     13.000     28.000     21.000     34.000     36.000     14.000     25.000      9.600
CHROMIUM      -0.010     -0.010     -0.010     -0.010     -0.050     -0.050     -0.010     -0.010     -0.010     -0.010
COPPER        -0.010     -0.010     -0.010      0.020     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100
FLUORIDE       3.000      0.600      0.600      5.000      0.600      6.400      8.000      1.000     24.000      0.600
HYDROXIDE      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON           0.110      0.050      3.600      3.500      6.900      9.100      6.600      5.100      6.800      8.100
LEAD          -0.010     -0.010      0.230      0.500      0.070      0.420      0.200      0.060      3.200      0.500
MAGNESIUM     94.000    105.000    110.000    105.000    110.000     79.000     83.000    100.000     35.000    140.000
MERCURY       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.002     -0.002
NITRATE        0.200      0.200      1.100      0.700      0.600      1.200      0.400      4.500      0.200      0.200
PHOSPHATE     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100
POTASSIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM      -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
SIL DIOXID    32.000     58.000     57.000     25.000     54.000     23.000     21.000     52.000     14.000     56.000
SODIUM       410.000    365.000    330.000    440.000    280.000    380.000    410.000    350.000    600.000    380.000
SULFATE      580.000    800.000    770.000    500.000    800.000    410.000    370.000    800.000    155.000    900.000
SULFIDE        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC           0.100      0.100      0.040      0.500     -0.100      0.800      0.900      0.800      0.500      0.100
GROS ALPHA     0.0        0.0        0.0        0.300      0.0        2.200      5.700      6.500      3.700      1.600
GROSS BETA     0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HARDNESS     630.000    845.000    890.000    580.000   1110.000    570.000    450.000    890.000    180.000    900.000
PH             6.800      6.800      6.600      7.200      6.800      7.000      7.000      6.000      7.400      6.800
CONDUCTANC  2038.000   2140.000   2470.000   2300.000   2460.000   1920.000   2300.000   2610.000   2399.000   2368.000
DIS SOLIDS  1740.000   1940.000   1910.000   1680.000   1960.000   1580.000   1520.000   1920.000   1570.000   2030.000
MANGANESE      0.190      0.110      0.050      0.090      0.020      0.080      0.060      0.050      0.050      0.050
ALKALINITY   840.000    715.000    760.000    809.000    720.000    884.700    324.000    639.000   1124.000    680.000
CYANIDE       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
BORON          0.800      0.500      0.200      0.400      0.800      1.300      1.000     -0.010      1.000      0.300
BARIUM        -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000
SILVER         0.020     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
NICKEL        -0.010     -0.010      0.030      0.030      0.010     -0.010      0.040      0.040      0.050      0.050
LITHIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TOC            0.0        0.0        3.000      5.000      3.000      7.000     32.000      3.000      0.0        0.0
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SAMPLES            1          2          3          4          5          6          7          8          9         10


SPECTROGRAPHIC

ALUMINUM        0.100      0.050      0.500      0.100      0.500      0.100      0.0        0.0        0.0        0.0
ANTIMONY        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ARSENIC         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BARIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BERYLIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BISMUTH         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BORON           0.500      0.100      0.200      0.200      0.500      0.500      0.0        0.0        0.0        0.0
CADMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CALCIUM     99999.000  99999.000  99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0
CERIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CESIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CHROMIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COBALT          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COLUMBIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COPPER          0.010      0.005      0.0        0.0        0.010      0.010      0.0        0.0        0.0        0.0
DYSPROSIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ERBIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
EUROPIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GADOLINIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GALLIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GERMANIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GOLD            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HAFNIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HOLMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
INDIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRIDIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON            0.100      0.100      0.100      0.100      0.020      0.010      0.0        0.0        0.0        0.0
LANTHANUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LEAD            0.0        0.0        0.0        0.0        0.0        0.001      0.0        0.0        0.0        0.0
LITHIUM         0.0        0.100      0.0        0.0        0.001      0.010      0.0        0.0        0.0        0.0
LUTETIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MAGNESIUM   99999.000  99999.000  99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0
MANGANESE       0.0        0.010      0.100      0.050      0.100      0.100      0.0        0.0        0.0        0.0
MERCURY         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MOLYBDENUM      0.001      0.001      0.0        0.0        0.0        0.001      0.0        0.0        0.0        0.0
NEODYMIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
NICKEL          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
OSMIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PALLADIUM       0.0        0.0        0.100      0.0        0.0        0.0        0.0        0.0        0.0        0.0
PLATINUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
POTASSIUM       2.000      2.000      0.0        0.100      2.000      2.000      0.0        0.0        0.0        0.0
PRASEODYMI      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RADIUM          0.0        0.200      0.0        0.0        0.0        0.0        0.0        0.100      0.0        0.0
RHENIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHODIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUBIDIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUTHENIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SAMARIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SCANDIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SILICON         5.000      5.000     10.000     10.000      2.000      5.000      0.0        0.0        0.0        0.0
SILVER          0.001      0.000      0.0        0.0        0.001      0.0        0.0        0.0        0.0        0.0
SODIUM      99999.000  99999.000  99999.000  99999.000      5.000      5.000      0.0        0.0        0.0        0.0
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RBOSP PROGRESS REPORT

SAMPLES	1	2	3	4	5	6	7	8	9	10
STRCNTIUM	1.000	0.100	0.100	0.100	0.100	0.100	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.010	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.0	0.0	0.0	0.200	0.001	0.0	0.0	0.0	0.0	0.0
ZIRCCNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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09/26/75                    WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-11                              PAGE 46

JOB#-741-40        OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 154019.50 Y- 215731.70 Z-    7341.00
DATE DRILL CCMPL-101274  DATE CCNV TO MCNITOR-112074  AQUIFER 1:  670.00- 910.00FT  AQUIFER 2: 1350.00-1480.00FT


SAMPLES            1         2         3         4         5         6         7         8         9        10

DATE           33175     33175     42775     42775     50975     50975     61175     61175     71375     71375
DEPTH         467.64    701.21    478.90    718.00    470.60    719.90    468.60    721.40    718.81    463.01
TEMP            55.4      58.6      55.4      58.1      57.5      59.9      57.6      59.2      65.3      57.2
LAB ID
LAB NUM         8782      8781      9926      9925      9928      9927       777       776      1244      1245
METHOD             3        3A         3        3A         3        3A         3        3A         3         3
AQUIF.LOC.         U         L         U         L         U         L         U         L         L         U

WET

ALUMINUM      -0.100    -0.010     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
AMMCNIA        0.0       0.0       0.780     0.120     0.340     0.120     0.300     0.300     0.800     0.400
ARSENIC       -0.010     0.0      -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
BICARBONAT   395.000   390.000   500.000   550.000   420.000   530.000   350.000   520.000  1990.000   390.000
CADMIUM       -0.010    -0.010    -0.010     0.010     0.010    -0.010    -0.010    -0.010    -0.010    -0.010
CALCIUM       22.000    14.000    56.000    23.000    26.000    13.000    30.000    11.000     6.600    21.000
CARBCNATE     12.000    60.000     5.800    11.000     4.800    13.000    30.000    48.000    60.000    -0.100
CHLORIDE      17.000     8.300    17.000    21.000    14.000    21.000    15.000     9.600    88.000    -1.000
CHROMIUM      -0.010    -0.010    -0.050    -0.050    -0.050    -0.050    -0.010    -0.010    -0.010    -0.010
CCPPER        -0.010    -0.010    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100
FLUORIDE       2.500    10.000     1.800    11.000     2.700    12.000     2.900    11.000    32.000     2.800
HYDROXIDE      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
IRCN           0.100    -0.050     4.200     2.400     4.500     8.700     4.300     4.600     2.500     2.300
LEAD           0.030     0.070     0.600     1.000     0.050     0.800     0.200     1.000     0.500     0.100
MAGNESIUM     29.000    20.000    54.000    23.000    38.000    19.000    31.000    20.000     4.800    33.000
MERCURY       -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.002    -0.002
NITRATE        0.300     0.200     0.400     0.700     0.300     1.200     0.200     0.200     0.300     0.800
PHOSPHATE     -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100
POTASSIUM      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SELENIUM      -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
SIL DIOXID    18.000     3.600    26.000     2.500    18.000     2.500    19.000     5.800    11.000    17.000
SODIUM       225.000   215.000   255.000   220.000   230.000   225.000   230.000   225.000   910.000   230.000
SULFATE      260.000   130.000   400.000    90.000   290.000    63.000   260.000    35.000    50.000   305.000
SULFIDE        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ZINC          -0.100    -0.100     0.700     0.200     0.300     0.500     0.900     0.500     0.200     0.200
GROS ALPHA     0.0       0.0       0.0       2.900     0.0       0.0       2.900     1.900    19.000     1.600
GROSS BETA     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0      31.000     0.0
HARDNESS     175.000   115.000   360.000   150.000   220.000   110.000   200.000   110.000    36.000   190.000
PH             7.200     7.500     7.000     7.800     6.800     7.400     6.100     6.500     7.500     7.000
CONDUCTANC   979.000   923.000  1480.000  1020.000  1220.000   995.000  1150.000  1050.000  3021.000  1512.000
DIS SOLIDS   780.000   650.000  1060.000   660.000   830.000   640.000   790.000   625.000  2140.000   805.000
MANGANESE      0.110    -0.050     0.060     0.010     0.050     0.050     0.100     0.050    -0.050     0.050
ALKALINITY   334.800   369.000   440.000   459.000   343.900   441.000   310.000   464.000  1679.000   320.000
CYANIDE       -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
BCRCN          0.700     0.800     0.900     0.940     0.800     1.000     0.200    -0.010     2.500     0.200
BARIUM        -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000
SILVER        -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
NICKEL        -0.010    -0.010     0.010    -0.010     0.010     0.020     0.020     0.020     0.030     0.060
LITHIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
TOC            0.0       0.0       1.000     4.000     1.000     4.000     4.000     4.000     0.0       0.0
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WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-11

SAMPLES	1	2	3	4	5	6	7	8	9	10
SPECTROGRAPHIC										
ALUMINUM	0.100	0.500	0.200	0.200	0.100	0.500	0.0	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	0.100	0.100	0.500	0.500	0.500	0.500	0.0	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	99999.000	99999.000	99999.000	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBOLT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.010	0.010	0.001	0.001	0.010	0.010	0.0	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.050	0.100	0.010	0.050	0.010	0.050	0.0	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.0	0.0	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0
LITHIUM	0.010	0.010	0.010	0.020	0.010	0.050	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	99999.000	99999.000	99999.000	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0
MANGANESE	0.010	0.010	0.100	0.100	0.050	0.100	0.0	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.001	0.0	0.001	0.001	0.010	0.001	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	1.000	5.000	5.000	5.000	5.000	5.000	0.0	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	10.000	5.000	5.000	5.000	5.000	5.000	0.0	0.0	0.0	0.0
SILVER	-0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	99999.000	99999.000	10.000	10.000	10.000	99999.000	0.0	0.0	0.0	0.0

SAMPLES	1	2	3	4	5	6	7	8	9	10
STRONTIUM	0.100	0.100	0.100	0.100	0.100	0.100	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.010	0.001	0.0	0.001	0.001	0.001	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.0	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NNN-J23-0000

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09/26/75                          WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-12                                      PAGE  49

JOB#-741-40         OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 155416.40 Y- 217335.40 Z-    7267.00
DATE DRILL CCMPL- 91574  DATE CONV TO MONITOR-112374  AQUIFER 1:  580.00- 620.00FT  AQUIFER 2: 1280.00-1430.00FT


SAMPLES             1         2         3         4         5         6         7         8

DATE            42775     42775     50975     50975     61175     61175     71375     71375
DEPTH          407.50    648.60    646.90    646.90    396.80    649.60    645.78    391.98
TEMP             51.8      57.2      55.3      57.0      55.8      59.7      65.3      57.2
LAB ID
LAB NUM          9930      9929      9932      9931       779       778      1334      1335
METHOD              3        3A         3        3A         3        3A         3         3
AQUIF.LOC.          U         L         U         L         U         L         L         U

WET

ALUMINUM      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
AMMONIA      -0.100     0.120    -0.100    -0.100     0.200     0.300     1.100     0.300
ARSENIC      -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
BICARBCNAT  200.000   350.000   100.000   470.000    85.000   380.000  2020.000   575.000
CADMIUM       0.010     0.020     0.020     0.010    -0.010    -0.010    -0.010    -0.010
CALCIUM      30.000    67.000    16.000    48.000    20.000    16.000    13.000   105.000
CARBCNATE    -0.100     6.700    -0.100    14.000    -0.100    54.000   150.000    -0.100
CHLCRIDE     21.000    14.000    27.000    21.000     9.600    11.000   145.000    14.000
CHRCMIUM     -0.050    -0.050    -0.050    -0.050    -0.010    -0.010    -0.010    -0.010
COPPER       -0.100     0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100
FLUORIDE      0.300     0.100     0.100     0.100     0.200     0.200    57.000     0.200
HYDRCXIDE     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
IRON          9.100     8.500     9.300     9.100     7.100     3.600     6.100     8.000
LEAD          0.230     0.250    -0.010     0.160     0.100     0.100     0.200     0.100
MAGNESIUM    62.000    88.000    11.000    78.000    14.000    76.000    20.000    70.000
MERCURY      -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.002    -0.002
NITRATE       0.900     0.050     0.200     0.100     0.200     0.300     0.100     0.100
PHOSPHATE    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100
POTASSIUM     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SELENIUM     -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
SIL DIOXID    2.900     8.500     0.600     2.500     3.100     4.500     5.900    16.000
SODIUM      160.000   120.000   225.000   210.000   260.000   265.000  1040.000   240.000
SULFATE     430.000   410.000   420.000   430.000   520.000   470.000   140.000   520.000
SULFIDE       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ZINC          1.200     0.900     0.200     1.000     3.900    46.000     0.900     0.100
GROS ALPHA    0.200     0.300     0.600     0.0       0.300     5.400    10.000     0.0
GROSS BETA    0.0       0.0       0.0       0.0       0.0       0.0      12.000     0.0
HARDNESS    330.000   530.000    86.000   440.000   110.000   350.000   115.000   550.000
PH            6.400     6.800     6.600     6.900     6.100     6.400     7.500     6.800
CONDUCTANC 1480.000  1750.000  1225.000  1780.000  1300.000  1600.000  3705.000  1827.000
DIS SCLIDS  820.000   890.000  1045.000  1040.000   870.000  1090.000  2470.000  1250.000
MANGANESE     0.680     0.300     0.780     0.140     0.400     0.060    -0.050     0.300
ALKALINITY  160.000   295.500    82.000   392.000    70.000   354.000  1770.000   550.000
CYANIDE      -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
BORON         0.800     0.640     1.200     0.700     4.800    -0.010     4.400     0.400
BARIUM       -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000
SILVER       -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
NICKEL        0.020     0.040     0.020     0.020     0.020     0.020     0.040     0.040
LITHIUM       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
TOC          10.000     4.000     4.000     4.000     6.000     2.000     0.0       0.0
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SAMPLES              1          2          3          4          5          6          7          8


SPECTROGRAPHIC

ALUMINUM          0.200      0.500      0.100      0.100      0.0        0.0        0.0        0.0
ANTIMONY          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ARSENIC           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BARIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BERYLIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BISMUTH           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BORON             0.500      0.500      0.500      0.500      0.0        0.0        0.0        0.0
CADMIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CALCIUM       99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0
CERIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CESIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CHROMIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COBALT            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COLUMBIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COPPER            0.010      0.010      0.010      0.001      0.0        0.0        0.0        0.0
DYSPROSIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ERBIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
EUROPIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GADOLINIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GALLIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GERMANIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GOLD              0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HAFNIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HOLMIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
INDIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRIDIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON              0.100      0.020      0.050      0.020      0.0        0.0        0.0        0.0
LANTHANUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LEAD              0.001      0.0        0.001      0.0        0.0        0.0        0.0        0.0
LITHIUM           0.010      0.010      0.020      0.010      0.0        0.0        0.0        0.0
LUTETIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MAGNESIUM     99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0
MANGANESE         0.100      0.100      0.010      0.050      0.0        0.0        0.0        0.0
MERCURY           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MOLYBDENUM        0.0        0.0        0.010      0.0        0.0        0.0        0.0        0.0
NEODYMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
NICKEL            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
OSMIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PALLADIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PLATINUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
POTASSIUM         5.000      2.000      5.000      1.000      0.0        0.0        0.0        0.0
PRASEODYMI        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RADIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHENIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHODIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUBIDIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUTHENIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SAMARIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SCANDIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SILICON           5.000      2.000      5.000      2.000      0.0        0.0        0.0        0.0
SILVER            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SODIUM        99999.000     10.000  99999.000      5.000      0.0        0.0        0.0        0.0
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WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-12

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SAMPLES            1          2          3          4          5          6          7          8

STRCNTIUM        0.100      0.100      0.100      0.100      0.0        0.0        0.0        0.0
TANTALUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TERBIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THALLIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THCRIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THULIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TIN              0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TITANIUM         0.001      0.001      0.010      0.001      0.0        0.0        0.0        0.0
TUNGSTEN         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
URANIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
VANADIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
YTTERBIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
YTTRIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC             0.001      0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZIRCCNIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
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JOB#-741-40          OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 156583.60 Y- 219490.80 Z-    7191.00
DATE DRILL COMPL- 92874  DATE CONV TO MONITOR-112274  AQUIFER 1:  510.00- 840.00FT  AQUIFER 2: 1280.00-1380.00FT


SAMPLES              1          2          3          4          5          6          7          8

DATE             42775      42775      50875      50975      61175      61175      71375      71375
DEPTH           384.40     578.10     573.80     384.80     387.50     574.00     572.30     384.42
TEMP              53.6       56.3       60.4       54.5       54.5       56.1       62.6       57.2
LAB ID
LAB NUM           9935       9934       9936       9937        879        878       1336       1337
METHOD               3         3A         3A          3          3         3A          3          3
AQUIF.LOC.           U          L          L          U          U          L          L          U

WET

ALUMINUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
AMMONIA       -0.100      0.120      0.200     -0.100      0.500      0.400      1.000      0.300
ARSENIC        0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
BICARBCNAT   525.000    630.000    495.000    460.000    435.000    615.000   1830.000    605.000
CADMIUM       -0.010      0.020     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
CALCIUM       53.000     21.000     21.000     49.000     30.000     13.000      9.000    105.000
CARBONATE     36.000     28.000    110.000     66.000     54.000    100.000    205.000     -0.100
CHLORIDE      14.000     21.000     14.000     13.000     12.000     15.000     89.000     14.000
CHROMIUM      -0.010     -0.050     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
COPPER        -0.100     -0.100     -0.100      0.100     -0.100     -0.100     -0.100     -0.100
FLUORIDE       0.100      6.200      7.000      0.100      0.100     12.000     66.000      0.100
HYDROXIDE      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON           3.300      2.900      1.500      1.800      5.200      0.500      2.700      7.700
LEAD           0.900      0.300      0.390      1.100      0.400      0.040      0.500      0.200
MAGNESIUM     79.000     51.000     48.000     82.000     74.000     34.000      6.200     72.000
MERCURY       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.002     -0.002
NITRATE        0.400      0.150      0.200      0.500      7.000      0.400      0.200      0.200
PHOSPHATE     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100
POTASSIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM      -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
SIL DIOXID    23.000      3.100      2.300     26.000     17.000      2.800      4.700     17.000
SODIUM       210.000    295.000    270.000    200.000    250.000    300.000   1000.000    200.000
SULFATE      360.000    260.000    235.000    345.000    400.000    110.000     50.000    475.000
SULFIDE        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC           3.700      1.100      1.200      1.400      2.000      0.100      0.100      0.300
GROS ALPHA     1.300      1.900      1.900      0.800      0.0        3.900     22.000      0.400
GROSS BETA     0.0        0.0        0.0        0.0        0.0        0.0       79.000      0.0
HARDNESS     455.000    620.000    250.000    460.000    380.000    170.000     48.000    555.000
PH             7.000      7.800      7.300      6.900      6.100      7.200      7.400      7.000
CONDUCTANC  1550.000   1530.000   1570.000   1460.000   1510.000   1600.000   3461.000   1638.000
DIS SOLIDS  1040.000    990.000    950.000   1010.000   1060.000    890.000   2330.000   1190.000
MANGANESE      0.070      0.010     -0.050      0.080      0.100     -0.050     -0.050      0.200
ALKALINITY   460.000    543.000    493.000    429.000    399.000    594.000   1670.000    495.000
CYANIDE       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
BORON          0.270      0.940      0.080      0.070      0.020      0.100      2.800      1.000
BARIUM        -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000
SILVER        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010      0.010
NICKEL         0.040      0.010      0.040      0.040      0.020      0.020      0.050      0.040
LITHIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TOC            3.000      3.000      2.000      2.000      7.000      8.000      0.0        0.0
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SAMPLES           1          2          3          4          5          6          7          8


SPECTROGRAPHIC

ALUMINUM        0.001      0.200      0.010      0.100      0.0        0.0        0.0        0.0
ANTIMONY        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ARSENIC         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BARIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BERYLIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BISMUTH         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BORON           0.100      0.500      0.100      0.100      0.0        0.0        0.0        0.0
CADMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CALCIUM     99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0
CERIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CESIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CHROMIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COBOLT          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COLUMBIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COPPER          0.0        0.010      0.0        0.0        0.0        0.0        0.0        0.0
DYSPROSIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ERBIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
EUROPIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GADOLINIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GALLIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GERMANIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GOLD            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HAFNIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HOLMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
INDIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRIDIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON            0.050      0.050      0.010      0.020      0.0        0.0        0.0        0.0
LANTHANUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LEAD            0.0        0.0        0.010      0.010      0.0        0.0        0.0        0.0
LITHIUM         0.0        0.010      0.0        0.0        0.0        0.0        0.0        0.0
LUTETIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MAGNESIUM   99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0
MANGANESE       0.010      0.100      0.0        0.0        0.0        0.0        0.0        0.0
MERCURY         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MOLYBDENUM      0.001      0.001      0.001      0.010      0.0        0.0        0.0        0.0
NEODYMIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
NICKEL          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
OSMIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PALLADIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PLATINUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
POTASSIUM       1.000      2.000      0.100      0.100      0.0        0.0        0.0        0.0
PRASEODYMI      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RADIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHENIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHODIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUBIDIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUTHENIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SAMARIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SCANDIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SILICON        10.000      5.000     10.000     10.000      0.0        0.0        0.0        0.0
SILVER          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SODIUM      99999.000     10.000  99999.000  99999.000      0.0        0.0        0.0        0.0
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SAMPLES            1          2          3          4          5          6          7          8

STRONTIUM      0.500      0.100      0.0        0.0        0.0        0.0        0.0        0.0
TANTALUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TERBIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THALLIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THORIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
THULIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TIN            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TITANIUM       0.0        0.001      0.0        0.0        0.0        0.0        0.0        0.0
TUNGSTEN       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
URANIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
VANADIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
YTTERBIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
YTTRIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC           0.010      0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZIRCONIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
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09/26/75                        WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-15                                PAGE  55

JOB#-741-40         OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 162945.30 Y- 215066.80 Z-    6980.00
DATE DRILL COMPL-102874  DATE CONV TO MONITOR-123074  AQUIFER 1:  600.00- 700.00FT  AQUIFER 2: 1300.00-1400.00FT


SAMPLES             1          2          3          4          5          6          7          8          9         10

DATE            33175      33175      42775      42775      50975      50975      61175      61175      71375      71375
DEPTH          344.56     275.33     360.90     275.00     361.40     275.00     363.70     276.10     361.07     275.04
TEMP             53.6       51.8       55.4       53.6       63.0       55.0       56.3       56.8       63.5       60.4
LAB ID
LAB NUM          8785       8786       9938       9939       9940       9941        880        881       1338       1339
METHOD             3A         3A         3A         3A         3A         3A         3A         3A          3          3
AQUIF.LOC.          L          U          L          U          L          U          L          U          L          U

WET

ALUMINUM       -0.100     -0.100     0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
AMMONIA        0.0        0.0        -0.100     -0.100      0.400     -0.100      0.200      0.200      1.400      0.200
ARSENIC        -0.010     -0.010     -0.010     0.0        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
BICARBONAT    555.000     -0.100    475.000     43.000    495.000     -0.100    440.000     -0.100   2280.000    325.000
CADMIUM        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
CALCIUM        69.000      5.300     62.000     17.000     83.000      4.100     38.000      0.800     17.000     30.000
CARBONATE      -0.100    120.000     36.000    145.000     24.000    190.000     30.000    290.000    235.000     90.000
CHLORIDE        9.700     43.000     11.000     10.000      8.600     39.000     14.000     40.000     48.000     14.000
CHROMIUM       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
COPPER         -0.010     -0.010     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100
FLUORIDE        0.400      0.400      0.400      1.400      0.400      0.900      0.700      0.800     85.000      2.400
HYDROXIDE      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON           -0.050     -0.050      2.800      0.280      3.000      1.100      4.000      0.500      4.500      2.800
LEAD           -0.010     -0.010      0.280      0.300      0.490      0.290      0.080      0.200      0.300      0.900
MAGNESIUM     140.000     15.000    135.000     66.000    120.000     35.000    125.000      3.400     29.000     36.000
MERCURY        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.002     -0.002
NITRATE         0.200      0.300      0.200      0.300     -0.100      0.400      0.100      0.800      0.100      0.200
PHOSPHATE      -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100      0.100
POTASSIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
SIL DIOXID      9.000      3.500      8.100     12.000      7.400      2.200     10.000      7.900     11.000      2.600
SODIUM        210.000    300.000    235.000    190.000    220.000    265.000    260.000    360.000   1220.000    260.000
SULFATE       710.000    440.000    740.000    385.000    700.000    360.000    700.000    240.000    180.000    320.000
SULFIDE        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC           -0.100     -0.100      0.300      0.300      0.300      0.100      0.200      0.100      0.300      0.100
GROS ALPHA     0.0        0.0         1.500     0.0        0.0        0.0         3.000      1.800     20.000      0.600
GROSS BETA     0.0        0.0        0.0        0.0        0.0        0.0        0.0        19.000     40.000      7.000
HARDNESS      740.000     76.000    705.000    310.000    705.000    150.000    615.000     16.000    160.000    225.000
PH              7.200     10.200      6.900      8.000      6.500      8.000      7.100      8.000      7.600      7.200
CONDUCTANC   1563.000   1445.000   2080.000   1490.000   1590.000   1240.000   2060.000   1830.000   4388.000   1380.000
DIS SOLIDS   1420.000    930.000   1460.000    780.000   1410.000    890.000   1400.000   1040.000   2950.000    900.000
MANGANESE       0.300     -0.050      0.150     -0.050      0.140     -0.050      0.100     -0.050     -0.050      0.070
ALKALINITY    455.000     98.000    420.000    155.000    425.000    155.000    385.000     36.000   2050.000    339.000
CYANIDE        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
BORON           0.500      0.500      0.050      0.060      0.070      0.080      0.070      0.040      4.400      0.100
BARIUM         -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000
SILVER          0.020     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
NICKEL         -0.010     -0.010      0.030      0.020      0.020      0.150      0.020      0.020      0.060      0.030
LITHIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TOC            0.0        0.0         3.000      2.000      4.000      4.000      7.000      7.000     0.0        0.0
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SAMPLES             1          2          3          4          5          6          7          8          9         10


SPECTROGRAPHIC

ALUMINUM        0.010      0.010      0.100      0.010      0.010      0.500      0.0        0.0        0.0        0.0
ANTIMONY        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ARSENIC         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BARIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BERYLIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BISMUTH         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BORON           0.100      0.100      0.100      0.100      0.500      0.100      0.0        0.0        0.0        0.0
CADMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CALCIUM     99999.000  99999.000  99999.000      1.000  99999.000  99999.000      0.0        0.0        0.0        0.0
CERIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CESIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CHROMIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COBOLT          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COLUMBIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COPPER          0.010      0.005      0.010      0.001      0.0        0.010      0.0        0.0        0.0        0.0
DYSPROSIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ERBIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
EUROPIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GADOLINIUM      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GALLIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GERMANIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GOLD            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HAFNIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HOLMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
INDIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRIDIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON            0.200      0.050      0.020      0.050      0.010      0.010      0.0        0.0        0.0        0.0
LANTHANUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LEAD            0.0        0.0        0.0        0.100      0.0        0.100      0.0        0.0        0.0        0.0
LITHIUM         0.001      0.010      0.0        0.0        0.100      0.010      0.0        0.0        0.0        0.0
LUTETIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MAGNESIUM   99999.000  99999.000  99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0
MANGANESE       0.010      0.010      0.050      0.0        0.100      0.0        0.0        0.0        0.0        0.0
MERCURY         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MOLYBDENUM      0.001      0.0        0.001      0.001      0.010      0.050      0.0        0.0        0.0        0.0
NEODYMIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
NICKEL          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
OSMIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PALLADIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PLATINUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
POTASSIUM       0.0        2.000      0.100      0.0        0.100      5.000      0.0        0.0        0.0        0.0
PRASEODYMI      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RADIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHENIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHODIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUBIDIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUTHENIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SAMARIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SCANDIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SILICON         5.000     10.000     10.000     10.000     10.000     10.000      0.0        0.0        0.0        0.0
SILVER          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SODIUM         10.000  99999.000  99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0
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WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-15

SAMPLES	1	2	3	4	5	6	7	8	9	10
STRCNTIUM	0.100	0.100	0.0	0.0	0.100	0.100	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.001	0.005	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.0	0.0	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZIRCCNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
JOB#-741-40         OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 155352.57 Y- 217387.19 Z-       0.0
DATE DRILL COMPL-113074  DATE CONV TO MONITOR-      0  AQUIFER 1:  580.00- 620.00FT  AQUIFER 2: 1280.00-1430.00FT


SAMPLES            1

DATE           50975
DEPTH            0.0
TEMP            60.8
LAB ID
LAB NUM          170
METHOD             3
AQUIF.LOC.         L

WET

ALUMINUM        0.0
AMMONIA         1.400
ARSENIC        -0.010
BICARBONAT   2420.000
CADMIUM        -0.010
CALCIUM        17.000
CARBONATE     240.000
CHLORIDE      160.000
CHROMIUM        0.0
COPPER         -0.100
FLUORIDE       72.000
HYDROXIDE       0.0
IRON            1.900
LEAD            0.060
MAGNESIUM       7.200
MERCURY        -0.010
NITRATE        -0.100
PHOSPHATE      -0.100
POTASSIUM       0.0
SELENIUM       -0.010
SIL DIOXID     14.000
SODIUM       1200.000
SULFATE        50.000
SULFIDE         0.0
ZINC            0.100
GROS ALPHA      7.300
GROSS BETA      0.0
HARDNESS       72.000
PH              8.000
CONDUCTANC   4180.000
DIS SOLIDS   2950.000
MANGANESE      -0.050
ALKALINITY   2180.000
CYANIDE        -0.010
BORON           5.300
BARIUM         -1.000
SILVER         -0.010
NICKEL          0.100
LITHIUM         0.0
TOC            13.000
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SAMPLES              1


SPECTROGRAPHIC

ALUMINUM        0.100
ANTIMONY        0.0
ARSENIC         0.0
BARIUM          0.0
BERYLIUM        0.0
BISMUTH         0.0
BORON           0.500
CADMIUM         0.0
CALCIUM        10.000
CERIUM          0.0
CESIUM          0.0
CHROMIUM        0.0
COBOLT          0.0
COLUMBIUM       0.0
COPPER          0.001
DYSPROSIUM      0.0
ERBIUM          0.0
EUROPIUM        0.0
GADOLINIUM      0.0
GALLIUM         0.0
GERMANIUM       0.0
GOLD            0.0
HAFNIUM         0.0
HOLMIUM         0.0
INDIUM          0.0
IRIDIUM         0.0
IRON            0.020
LANTHANUM       0.0
LEAD            0.0
LITHIUM         0.010
LUTETIUM        0.0
MAGNESIUM       5.000
MANGANESE       0.001
MERCURY         0.0
MOLYBDENUM      0.0
NEODYMIUM       0.0
NICKEL          0.0
OSMIUM          0.0
PALLADIUM       0.0
PLATINUM        0.0
POTASSIUM       2.000
PRASEODYMI      0.0
RADIUM          0.700
RHENIUM         0.0
RHODIUM         0.0
RUBIDIUM        0.0
RUTHENIUM       0.0
SAMARIUM        0.0
SCANDIUM        0.0
SELENIUM        0.0
SILICON         2.000
SILVER          0.0
SODIUM      99999.000
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09/26/75                    WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-16

SAMPLES            1

STRCNTIUM        0.0
TANTALUM         0.0
TERBIUM          0.0
THALLIUM         0.0
THCRIUM          0.0
THULIUM          0.0
TIN              0.0
TITANIUM         0.0
TUNGSTEN         0.0
URANIUM          0.0
VANADIUM         0.0
YTTERBIUM        0.0
YTTRIUM          0.0
ZINC             0.0
ZIRCCNIUM        0.0
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RBOSP [illegible]

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09/26/75                                    WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-17                                       PAGE  61

JOB#-741-40          OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 151719.55 Y- 229929.78 Z-      0.0
DATE DRILL COMPL-112474  DATE CONV TO MONITOR-      0  AQUIFER 1:  220.00- 310.00FT  AQUIFER 2:  940.00-1020.00FT


SAMPLES              1          2

DATE             32475      42975
DEPTH           375.00     368.64
TEMP              57.2       57.2
LAB ID
LAB NUM           8156        176
METHOD               3          3
AQUIF.LOC.           L          L

WET

ALUMINUM         0.390      0.0
AMMONIA          1.600      0.600
ARSENIC         -0.010     -0.010
BICARBONAT     840.000    710.000
CADMIUM         -0.001     -0.010
CALCIUM         25.000     34.000
CARBONATE       -0.100     75.000
CHLORIDE        19.000     21.000
CHROMIUM        -0.010      0.0
COPPER           0.010     -0.100
FLUORIDE         4.000      6.000
HYDROXIDE        0.0        0.0
IRON             3.000      8.900
LEAD             0.003      0.100
MAGNESIUM       44.000     57.000
MERCURY          0.002     -0.010
NITRATE          0.200      0.200
PHOSPHATE       -0.100     -0.100
POTASSIUM        0.0        0.0
SELENIUM        -0.010     -0.010
SIL DIOXID       4.500      4.700
SODIUM         385.000    350.000
SULFATE        350.000    320.000
SULFIDE          0.0        0.0
ZINC             0.050      0.200
GROS ALPHA       2.500      1.500
GROSS BETA       4.000      0.0
HARDNESS       245.000    320.000
PH               6.400      6.800
CONDUCTANC    1750.000   1525.000
DIS SOLIDS    1250.000   1220.000
MANGANESE        0.320      0.090
ALKALINITY     690.000    641.000
CYANIDE         -0.010     -0.010
BORON           -0.010      0.800
BARIUM          -1.000     -1.000
SILVER           0.001     -0.010
NICKEL           0.003      0.040
LITHIUM          0.0        0.0
TOC              0.0        5.000
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SAMPLES              1          2


SPECTROGRAPHIC

ALUMINUM        0.200      0.050
ANTIMONY        0.0        0.0
ARSENIC         0.0        0.0
BARIUM          0.0        0.0
BERYLIUM        0.0        0.0
BISMUTH         0.0        0.0
BORON           0.0        0.500
CADMIUM         0.0        0.0
CALCIUM     99999.000     10.000
CERIUM          0.0        0.0
CESIUM          0.0        0.0
CHROMIUM        0.0        0.0
COBALT          0.0        0.0
COLUMBIUM       0.0        0.0
COPPER          0.001      0.001
DYSPROSIUM      0.0        0.0
ERBIUM          0.0        0.0
EUROPIUM        0.0        0.0
GADOLINIUM      0.0        0.0
GALLIUM         0.0        0.0
GERMANIUM       0.0        0.0
GOLD            0.0        0.0
HAFNIUM         0.0        0.0
HOLMIUM         0.0        0.0
INDIUM          0.0        0.0
IRIDIUM         0.0        0.0
IRON            0.500      0.020
LANTHANUM       0.0        0.0
LEAD            0.0        0.0
LITHIUM         0.0        0.010
LUTETIUM        0.0        0.0
MAGNESIUM   99999.000      5.000
MANGANESE       0.100      0.010
MERCURY         0.0        0.0
MOLYBDENUM      0.001      0.0
NEODYMIUM       0.0        0.0
NICKEL          0.0        0.0
OSMIUM          0.0        0.0
PALLADIUM       0.0        0.0
PLATINUM        0.0        0.0
POTASSIUM       5.000      2.000
PRASEODYMI      0.0        0.0
RADIUM          0.0        0.0
RHENIUM         0.0        0.0
RHODIUM         0.0        0.0
RUBIDIUM        0.0        0.0
RUTHENIUM       0.0        0.0
SAMARIUM        0.0        0.0
SCANDIUM        0.0        0.0
SELENIUM        0.0        0.0
SILICON         5.000      2.000
SILVER          0.0        0.0
SODIUM      99999.000  99999.000
```

RBOSP

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GS-17

SAMPLES	1	2
STRONTIUM	0.100	0.010
TANTALUM	0.0	0.0
TERBIUM	0.0	0.0
THALLIUM	0.0	0.0
THORIUM	0.0	0.0
THULIUM	0.0	0.0
TIN	0.0	0.0
TITANIUM	0.010	0.0
TUNGSTEN	0.0	0.0
URANIUM	0.0	0.0
VANADIUM	0.0	0.0
YTTERBIUM	0.0	0.0
YTTRIUM	0.0	0.0
ZINC	0.0	0.0
ZIRCONIUM	0.0	0.0

RBOSP [illegible]

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JOB#-              OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 163429.76 Y- 229033.32 Z-      0.0
DATE DRILL COMPL-111774  DATE CONV TO MONITOR-     0  AQUIFER 1:  350.00- 440.00FT  AQUIFER 2: 1375.00-1540.00FT


SAMPLES               1

DATE              32175
DEPTH            346.71
TEMP               61.5
LAB ID
LAB NUM            8154
METHOD               3A
AQUIF.LOC.            L

WET

ALUMINUM          0.260
AMMONIA           1.400
ARSENIC          -0.010
BICARBONAT     7400.000
CADMIUM          -0.001
CALCIUM          -1.000
CARBONATE       140.000
CHLORIDE        110.000
CHROMIUM         -0.010
COPPER           -0.010
FLUORIDE         30.000
HYDROXIDE         0.0
IRON              0.110
LEAD              0.006
MAGNESIUM         6.800
MERCURY          -0.001
NITRATE          -0.100
PHOSPHATE         2.400
POTASSIUM         0.0
SELENIUM         -0.010
SIL DIOXID        7.600
SODIUM         2950.000
SULFATE           3.500
SULFIDE           0.0
ZINC              0.060
GROS ALPHA       23.000
GROSS BETA      260.000
HARDNESS         28.000
PH                8.400
CONDUCTANC     7800.000
DIS SOLIDS     6870.000
MANGANESE        -0.010
ALKALINITY     6185.000
CYANIDE          -0.010
BORON             0.800
BARIUM           -1.000
SILVER            0.008
NICKEL            0.006
LITHIUM           0.0
TOC               0.0
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RBOSP [illegible]

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SAMPLES              1


SPECTROGRAPHIC

ALUMINUM        0.100
ANTIMONY        0.0
ARSENIC         0.0
BARIUM          0.0
BERYLIUM        0.0
BISMUTH         0.0
BORON           0.100
CADMIUM         0.0
CALCIUM         5.000
CERIUM          0.0
CESIUM          0.0
CHROMIUM        0.0
COBALT          0.0
COLUMBIUM       0.0
COPPER          0.001
DYSPROSIUM      0.0
ERBIUM          0.0
EUROPIUM        0.0
GADOLINIUM      0.0
GALLIUM         0.0
GERMANIUM       0.0
GOLD            0.0
HAFNIUM         0.0
HOLMIUM         0.0
INDIUM          0.0
IRIDIUM         0.0
IRON            0.100
LANTHANUM       0.0
LEAD            0.0
LITHIUM         0.010
LUTETIUM        0.0
MAGNESIUM       5.000
MANGANESE       0.010
MERCURY         0.0
MOLYBDENUM      0.001
NEODYMIUM       0.0
NICKEL          0.0
OSMIUM          0.0
PALLADIUM       0.0
PLATINUM        0.0
POTASSIUM       1.000
PRASEODYMI      0.0
RADIUM          0.0
RHENIUM         0.0
RHODIUM         0.0
RUBIDIUM        0.0
RUTHENIUM       0.0
SAMARIUM        0.0
SCANDIUM        0.0
SELENIUM        0.0
SILICON        10.000
SILVER          0.0
SODIUM      99999.000
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SAMPLES             1

STRONTIUM      0.100
TANTALUM       0.0
TERBIUM        0.0
THALLIUM       0.0
THORIUM        0.0
THULIUM        0.0
TIN            0.0
TITANIUM       0.0
TUNGSTEN       0.0
URANIUM        0.0
VANADIUM       0.0
YTTERBIUM      0.0
YTTRIUM        0.0
ZINC           0.0
ZIRCONIUM      0.0
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JOB#-741-40         OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 151453.91 Y- 232774.44 Z-    7452.00
DATE DRILL COMPL-111674  DATE CONV TO MONITOR-121374  AQUIFER 1:  600.00- 800.00FT  AQUIFER 2: 1360.00-1500.00FT


SAMPLES             1          2          3          4          5          6          7          8          9         10

DATE            32975      32975      42275      42275      50875      50875      60975      60975      71775      71775
DEPTH          807.05     632.72     629.44     821.71     825.72     627.64     827.00     628.00     820.03     623.71
TEMP             57.2       55.6       57.0       59.4       58.6       57.8       58.8       57.4       64.4       59.0
LAB ID
LAB NUM          8887       8888       9943       9942       9944       9945        884        885       1340       1341
METHOD              3          3          3          3          3          3          3          3          3          3
AQUIF.LOC.          L          U          U          L          L          U          L          U          L          U

WET

ALUMINUM        0.300      0.400      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
AMMONIA        -0.100      0.100      1.200     -0.100     -0.100     -0.100      0.100      0.100      0.200      0.200
ARSENIC        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010      0.040
BICARBCNAT    355.000    390.000    370.000    370.000    450.000    390.000    340.000    335.000    590.000    395.000
CADMIUM        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
CALCIUM        16.000     27.000     66.000     30.000     18.000     51.000     16.000     18.000     16.000     43.000
CARBCNATE       9.000     -0.100     18.000     24.000     -0.100     12.000     36.000     24.000     66.000     -0.100
CHLORIDE        6.900      9.700     14.000     16.000     17.000     13.000      6.900     16.000     21.000     27.000
CHROMIUM       -0.010     -0.010      0.0       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
COPPER          0.080      0.780     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100
FLUORIDE        0.400      0.200      0.100      0.400      0.400      0.100      0.400      0.200      4.700      0.200
HYDRCXIDE       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON            0.460      2.100      2.000      1.200      2.100      4.200      3.000      9.500      3.400      8.400
LEAD            1.500      2.500      1.000      3.600      4.600      1.100      2.300      1.700      0.700      0.200
MAGNESIUM      31.000     38.000     24.000     35.000     35.000     30.000     26.000     31.000     22.000     29.000
MERCURY        -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.002     -0.002
NITRATE        -0.100      0.500     -0.100     -0.100     -0.100     -0.100      0.200      0.100      0.200      0.200
PHOSPHATE      -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100     -0.100
POTASSIUM       0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
SIL DIOXID      4.400     21.000     24.000      5.100     -0.100     22.000      2.000      6.000      9.900     14.000
SODIUM        200.000    220.000    230.000    190.000    190.000    210.000    190.000    205.000    335.000    230.000
SULFATE       270.000    300.000    350.000    250.000    220.000    320.000    185.000    250.000    230.000    330.000
SULFIDE         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ZINC            0.310      0.540      0.400      0.300      0.400      0.400      0.500      1.000      0.200      0.200
GROS ALPHA      0.0        0.0        0.900      2.000      2.000      7.600      2.000      2.600      3.900     29.000
GROSS BETA      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0       11.000      7.000
HARDNESS      170.000    225.000    265.000    215.000    190.000    250.000    150.000    170.000    130.000    230.000
PH              6.600      6.400      6.400      6.800      6.700      6.500      7.200      6.600      7.200      7.000
CONDUCTANC   1200.000   1220.000   1180.000   1050.000   1040.000   1150.000    990.000   1120.000   1323.000   1205.000
DIS SOLIDS    710.000    810.000    910.000    730.000    700.000    850.000    630.000    720.000   1000.000    880.000
MANGANESE       0.140      0.450      0.140     -0.050      0.400      0.150      0.050      0.300      0.060      0.050
ALKALINITY    297.400    320.000    320.000    325.000    370.000    330.000    310.000    295.000    539.000    325.000
CYANIDE         0.0        0.0       -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
BORON           0.200      0.300      0.160      0.080      0.080      0.410      0.010      0.060      0.300      0.200
BARIUM         -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000     -1.000
SILVER         -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010     -0.010
NICKEL          0.020      0.020      0.020      0.020      0.020      0.020      0.040      0.020      0.010      0.200
LITHIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
TOC             0.0        0.0        6.000     17.000     17.000      9.000     10.000     12.000      0.0        0.0
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SAMPLES              1          2          3          4          5          6          7          8          9          10


SPECTROGRAPHIC

ALUMINUM          0.100      0.100      0.100      0.100      0.010      0.100      0.0        0.0        0.0        0.0
ANTIMONY          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ARSENIC           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BARIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BERYLIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BISMUTH           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BORON             0.500      1.000      0.100      0.500      0.100      0.100      0.0        0.0        0.0        0.0
CADMIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CALCIUM       99999.000  99999.000  99999.000  99999.000     10.000  99999.000      0.0        0.0        0.0        0.0
CERIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CESIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CHROMIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COBALT            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COLUMBIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COPPER            0.020      0.010      0.010      0.010      0.010      0.010      0.0        0.0        0.0        0.0
DYSPROSIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ERBIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
EUROPIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GADOLINIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GALLIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GERMANIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GOLD              0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HAFNIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HOLMIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
INDIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRIDIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON              0.200      0.500      0.050      0.010      0.010      0.020      0.0        0.0        0.0        0.0
LANTHANUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LEAD              0.0        0.0        0.200      0.500      0.200      0.050      0.0        0.0        0.0        0.0
LITHIUM           0.0        0.010      0.0        0.0        0.100      0.010      0.0        0.0        0.0        0.0
LUTETIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MAGNESIUM     99999.000  99999.000  99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0
MANGANESE         0.010      0.020      0.100      0.010      0.010      0.100      0.0        0.0        0.0        0.0
MERCURY           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MOLYBDENUM        0.0        0.001      0.500      0.050      0.100      0.500      0.0        0.0        0.0        0.0
NEODYMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
NICKEL            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
OSMIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PALLADIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PLATINUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
POTASSIUM         1.000      2.000      0.500      1.000      0.100      1.000      0.0        0.0        0.0        0.0
PRASEODYMI        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RADIUM            0.0        0.300      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHENIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHODIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUBIDIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUTHENIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SAMARIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SCANDIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SILICON           5.000      5.000     20.000     10.000     10.000     20.000      0.0        0.0        0.0        0.0
SILVER            0.001      0.001      0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SODIUM        99999.000  99999.000  99999.000  99999.000  99999.000  99999.000      0.0        0.0        0.0        0.0
```

NNN-J23-0000

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GSM-1

SAMPLES	1	2	3	4	5	6	7	8	9	10
STRONTIUM	0.100	0.100	0.100	0.0	0.100	0.100	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.010	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.010	0.0	0.100	0.0	0.0	0.010	0.0	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RBOSP

JOB#-741-40 OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 173637.82 Y- 240533.37 Z- 6556.00
DATE DRILL CCMPL-103074 DATE CCNV TO MONITOR- 10475 AQUIFER 1: 360.00-1160.00FT AQUIFER 2: 1980.00-2030.00FT

SAMPLES	1	2	3	4	5	6	7	8	9	10
DATE	32975	32975	42675	42675	50775	50975	60975	60975	71675	71675
DEPTH	353.04	234.16	232.43	353.44	232.25	353.69	356.00	233.00	232.16	354.60
TEMP	50.9	46.8	0.0	53.6	51.6	52.5	53.2	52.7	53.9	55.4
LAB ID										
LAB NUM	9017	9018	240	239	9794	9946	886	887	1343	1342
METHOD	3	3	3	3	3	3	3	3	3	3A
AQUIF.LOC.	L	U	U	L	U	L	L	U	U	L
WET										
ALUMINUM	-0.100	-0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AMMONIA	0.100	0.300	0.200	0.100	-0.100	-0.100	0.200	0.400	0.500	0.400
ARSENIC	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BICARBONAT	585.000	645.000	590.000	540.000	605.000	435.000	415.000	590.000	650.000	500.000
CADMIUM	-0.010	-0.010	-0.010	0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
CALCIUM	85.000	95.000	92.000	66.000	78.000	67.000	46.000	51.000	65.000	20.000
CARBONATE	-0.100	-0.100	12.000	8.600	-0.100	55.000	42.000	-0.100	-0.100	96.000
CHLORIDE	17.000	11.000	64.000	16.000	7.100	17.000	9.600	12.000	14.000	14.000
CHROMIUM	-0.010	-0.010	-0.050	-0.050	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
COPPER	-0.010	-0.010	-0.100	-0.100	0.020	-0.100	-0.100	-0.100	-0.100	-0.100
FLUORIDE	0.200	0.100	0.200	0.200	0.200	0.200	0.500	0.100	0.400	9.600
HYDROXIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.120	-0.050	7.600	7.200	5.400	6.200	4.500	6.000	8.200	5.700
LEAD	0.030	0.040	0.200	0.700	0.510	0.530	0.200	0.200	0.700	0.800
MAGNESIUM	115.000	135.000	130.000	130.000	140.000	115.000	110.000	145.000	150.000	24.000
MERCURY	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.002	-0.002
NITRATE	0.600	0.700	0.700	1.200	0.300	0.100	0.200	0.900	0.200	0.100
PHOSPHATE	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.100	-0.010	-0.100
POTASSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
SIL DIOXID	19.000	38.000	21.000	13.000	22.000	11.000	5.100	17.000	20.000	11.000
SODIUM	195.000	210.000	240.000	200.000	190.000	190.000	220.000	215.000	210.000	275.000
SULFATE	580.000	640.000	630.000	600.000	630.000	570.000	580.000	620.000	590.000	130.000
SULFIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.120	0.270	0.400	0.600	0.620	0.400	0.600	0.500	1.000	1.100
GROS ALPHA	0.0	0.0	3.400	0.0	0.0	1.400	1.300	3.000	4.400	3.000
GROSS BETA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HARDNESS	685.000	790.000	780.000	690.000	770.000	635.000	575.000	730.000	780.000	150.000
PH	6.600	6.600	6.800	6.400	6.600	6.800	6.800	6.600	6.900	7.400
CONDUCTANC	1650.000	1740.000	1820.000	1730.000	1920.000	1670.000	1590.000	1850.000	1848.000	1101.000
DIS SOLIDS	1300.000	1450.000	1460.000	1290.000	1370.000	1240.000	1220.000	1360.000	1380.000	830.000
MANGANESE	0.200	0.380	0.200	0.200	0.280	0.200	0.200	0.300	0.060	0.060
ALKALINITY	480.000	530.000	490.000	447.000	495.000	399.000	374.000	485.000	530.000	488.000
CYANIDE	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BORON	-0.100	0.200	0.200	9.400	0.260	0.050	0.010	0.030	0.400	0.800
BARIUM	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
SILVER	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	0.010	-0.010
NICKEL	0.020	0.040	0.030	0.030	0.020	0.020	0.020	0.030	0.040	0.030
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOC	0.0	0.0	10.000	8.000	6.000	7.000	8.000	8.000	0.0	0.0

```
SAMPLES             1          2          3          4          5          6          7          8          9         10


SPECTROGRAPHIC

ALUMINUM          0.100      0.010      0.0        0.0        0.500      0.100      0.0        0.0        0.0        0.0
ANTIMONY          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ARSENIC           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BARIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BERYLLIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BISMUTH           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
BORON             0.100      0.100      0.0        0.0        0.100      0.100      0.0        0.0        0.0        0.0
CADMIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CALCIUM       99999.000  99999.000      0.0        0.0    99999.000  99999.000      0.0        0.0        0.0        0.0
CERIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CESIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
CHROMIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COBOLT            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COLUMBIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
COPPER            0.010      0.010      0.0        0.0        0.010      0.010      0.0        0.0        0.0        0.0
DYSPROSIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
ERBIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
EUROPIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GADOLINIUM        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GALLIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GERMANIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
GOLD              0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HAFNIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
HOLMIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
INDIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRIDIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
IRON              0.010      0.100      0.0        0.0        1.000      0.050      0.0        0.0        0.0        0.0
LANTHANUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
LEAD              0.0        0.0        0.0        0.0        0.010      0.010      0.0        0.0        0.0        0.0
LITHIUM           0.100      0.500      0.0        0.0        0.0        0.010      0.0        0.0        0.0        0.0
LUTETIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MAGNESIUM     99999.000  99999.000      0.0        0.0    99999.000  99999.000      0.0        0.0        0.0        0.0
MANGANESE         0.100      0.200      0.0        0.0        0.010      0.100      0.0        0.0        0.0        0.0
MERCURY           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
MOLYBDENUM        0.010      0.0        0.0        0.0        0.001      0.010      0.0        0.0        0.0        0.0
NEODYMIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
NICKEL            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
OSMIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PALLADIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
PLATINUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
POTASSIUM         0.100      0.100      0.0        0.0        0.100      1.000      0.0        0.0        0.0        0.0
PRASEODYMI        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RADIUM            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHENIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RHODIUM           0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUBIDIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
RUTHENIUM         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SAMARIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SCANDIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SELENIUM          0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SILICON          10.000     20.000      0.0        0.0       20.000     10.000      0.0        0.0        0.0        0.0
SILVER            0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
SODIUM        99999.000  99999.000      0.0        0.0    99999.000  99999.000      0.0        0.0        0.0        0.0
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SAMPLES	1	2	3	4	5	6	7	8	9	10
STRONTIUM	0.100	0.100	0.0	0.0	0.0	0.100	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.0	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.0	0.010	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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09/26/75                         WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GSM-3                                  PAGE  73

JOB#-741-40         OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 183730.57 Y- 234224.33 Z-    6321.00
DATE DRILL CCMPL-110974  DATE CCNV TO MCNITCR-122674  AQUIFER 1:  100.00-1000.00FT  AQUIFER 2: 1450.00-1650.00FT


SAMPLES              1         2         3         4         5         6         7         8         9        10        11        12

DATE             32975     32975     42675     42675     50775     50775     60975     60975     71675     71675     71675     71675
DEPTH            20.93    134.11     20.77    136.99     20.78    135.67     22.50    140.00    138.13     22.32    138.13     22.32
TEMP              46.8      47.8      47.3      48.2      47.8      51.6      46.6      48.2      52.7      49.3      49.1      47.8
LAB ID
LAB NUM           9020      9019       242       241      9796      9947       889       888      1346      1347      1344      1345
METHOD               3        3A         3        3A         3        3A         3        3A         3         3        3A        3A
AQUIF.LCC.           U         L         U         L         U         L         U         L         L         U         L         U

WET

ALUMINUM        -0.100    -0.100    0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
AMMONIA          0.500     0.200     0.500     0.300     0.330     2.500     0.500     0.400     0.700     0.500     0.100     0.400
ARSENIC         -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
BICARBCNAT     555.000   495.000   530.000   410.000   380.000   250.000   435.000   385.000   825.000   590.000   230.000   395.000
CADMIUM         -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
CALCIUM         42.000    11.000    34.000    26.000    25.000    24.000    25.000    11.000     6.600    30.000     9.800    30.000
CARBCNATE       -0.100    63.000     8.600    75.000    42.000   110.000    42.000    72.000    -0.100    -0.100   150.000    66.000
CHLORICE        15.000    17.000    27.000     7.000    24.000    17.000    18.000    14.000     6.900    16.000    20.000    27.000
CHROMIUM        -0.010    -0.010    -0.050    -0.050    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
COPPER          -0.010    -0.010    -0.100     0.100     0.010    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100
FLUORIDE         1.300     2.200     1.400     2.900     1.400     3.000     1.600     3.700    14.000     2.200     4.000     1.700
HYDRCXIDE        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
IRCN            -0.050    -0.050     7.400     1.900     3.900     1.700     3.000     1.100     2.300     3.100     2.000     5.900
LEAD             0.030     0.050     0.700     0.200     0.210     0.050     0.070     0.050     0.400     0.200     0.200     0.200
MAGNESIUM       66.000    62.000    72.000    52.000    74.000    70.000    72.000    56.000    14.000    80.000    56.000    72.000
MERCURY         -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.002    -0.002    -0.002    -0.002
NITRATE          0.700     0.400     0.200     0.300     0.200     1.000     0.600     0.200     0.800     0.300     0.100     0.400
PHOSPHATE       -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100    -0.010    -0.100
POTASSIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SELENIUM        -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
SIL DIOXID       6.900     4.300     4.300     1.900     1.100     1.600     0.600    -0.100    28.000    21.000     1.600     2.600
SODIUM         250.000   310.000   280.000   290.000   225.000   230.000   200.000   305.000   325.000   280.000   300.000   285.000
SULFATE        440.000   420.000   490.000   410.000   400.000   425.000   300.000   415.000    20.000   465.000   380.000   470.000
SULFIDE          0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ZINC             1.000     0.030     0.100     0.100     0.220     0.200     1.600     0.100     0.200     0.600     0.100     1.100
GROS ALPHA       0.0       0.0       6.900     3.300     0.300     2.500     0.0       4.900     1.000     2.400     3.100     0.700
GROSS BETA       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       5.000     6.000
HARDNESS       375.000   280.000   380.000   280.000   365.000   350.000   355.000   255.000    76.000   405.000   265.000   370.000
PH               6.600     7.600     6.600     7.000     6.500     7.200     6.600     7.200     7.200     7.100     7.400     7.200
CONDUCTANC    1600.000  1550.000  1670.000  1460.000  1590.000  1520.000  1540.000  1420.000  1164.000  1610.000  1470.000  1491.000
DIS SOLIDS    1090.000  1130.000  1180.000  1090.000   980.000  1000.000   880.000   760.000   820.000  1190.000  1040.000  1150.000
MANGANESE        0.130    -0.050     0.100    -0.050     0.100    -0.050     0.100     0.050    -0.050     0.060     0.090     0.080
ALKALINITY     455.000   405.000   437.000   401.000   344.000   294.000   389.000   374.000   675.000   485.000   315.000   379.000
CYANIDE         -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
BORCN            0.400     0.200     0.500     5.400     0.520     0.040     0.030     0.070     0.700     0.600     0.600     0.600
BARIUM          -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000
SILVER          -0.010    -0.010     0.020    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010     0.010     0.010
NICKEL           0.020     0.020     0.020     0.020     0.010     0.010     0.030     0.020     0.020     0.020     0.040     0.030
LITHIUM          0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
TOC              0.0       0.0      27.000    14.000    20.000     9.000    17.000     7.000     0.0       0.0       0.0       0.0
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SAMPLES	1	2	3	4	5	6	7	8	9	10	11	12
SPECTROGRAPHIC												
ALUMINUM	0.100	0.010	0.0	0.0	0.100	0.001	0.0	0.0	0.0	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	0.100	0.100	0.0	0.0	0.100	0.100	0.0	0.0	0.0	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	99999.000	10.000	0.0	0.0	99999.000	10.000	0.0	0.0	0.0	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBOLT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.0	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.010	0.010	0.0	0.0	0.010	0.050	0.0	0.0	0.0	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LITHIUM	0.100	0.100	0.0	0.0	0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	99999.000	99999.000	0.0	0.0	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0
MANGANESE	0.050	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.001	0.010	0.0	0.0	0.010	0.010	0.0	0.0	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	0.100	0.100	0.0	0.0	0.100	0.500	0.0	0.0	0.0	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.0	0.0	0.100	0.0	0.0	0.0	0.0	0.100	0.0	0.0	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	5.000	10.000	0.0	0.0	5.000	10.000	0.0	0.0	0.0	0.0	0.0	0.0
SILVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	99999.000	99999.000	0.0	0.0	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0	0.0

WATER WUALITY ANALYSIS RESULTS -- CORE HOLE ID GSM-3

SAMPLES	1	2	3	4	5	6	7	8	9	10	11	12
STRONTIUM	0.100	0.100	0.0	0.0	0.0	0.100	0.0	0.0	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JOB#-741-40 OWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X- 156524.43 Y- 238026.20 Z- 7175.00
DATE DRILL CCMPL-110674 DATE CCNV TO MCNITCR-121674 AQUIFER 1: 840.00- 960.00FT AQUIFER 2: 1720.00-1990.00FT

SAMPLES	1	2	3	4	5	6	7	8	9	10	11
DATE	32975	32975	42675	42675	50875	50875	60975	60975	71775	71775	71775
DEPTH	490.82	546.55	492.36	555.71	492.74	560.20	495.00	564.00	560.84	492.77	560.84
TEMP	54.9	54.5	55.4	57.2	56.3	56.8	56.8	57.0	61.7	58.1	57.6
LAB ID											
LAB NUM	9022	9021	168	243	169	167	891	890	1349	1350	1348
METHOD	3	3A	3	3A	3	3A	3	3A	3	3	3A
AQUIF.LOC.	U	L	U	L	U	L	U	L	L	U	L
WET											
ALUMINUM	-0.100	-0.100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AMMONIA	-0.100	-0.100	-0.100	0.100	-0.100	-0.010	0.200	0.300	0.800	0.400	0.300
ARSENIC	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BICARBCNAT	850.000	610.000	900.000	540.000	900.000	530.000	800.000	500.000	2980.000	780.000	490.000
CADMIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
CALCIUM	200.000	72.000	210.000	41.000	220.000	89.000	130.000	39.000	11.000	80.000	20.000
CARBONATE	-0.100	-0.100	-0.100	-0.100	-0.100	29.000	18.000	60.000	130.000	-0.100	30.000
CHLCRIDE	9.700	38.000	14.000	44.000	21.000	43.000	27.000	48.000	96.000	16.000	42.000
CHRCMIUM	-0.010	-0.010	-0.050	-0.050	-0.050	-0.050	-0.010	-0.010	-0.010	-0.010	-0.010
COPPER	-0.010	-0.010	-0.100	-0.100	-0.100	-0.010	-0.100	-0.100	0.200	-0.100	-0.100
FLUCRIDE	0.400	0.600	0.200	0.500	0.200	0.600	0.200	1.100	26.000	0.400	0.600
HYDRCXIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRCN	-0.050	-0.050	7.400	4.300	6.400	6.000	14.000	5.100	15.500	18.000	4.800
LEAD	0.020	0.030	0.750	0.400	0.400	0.750	0.400	0.700	20.000	0.200	1.200
MAGNESIUM	94.000	92.000	89.000	99.000	90.000	67.000	130.000	93.000	45.000	130.000	93.000
MERCURY	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.002	-0.002	-0.002
NITRATE	0.300	0.300	0.200	-0.100	-0.100	0.100	0.500	1.500	0.200	0.100	0.800
PHOSPHATE	-0.100	-0.100	-0.100	-0.100	-0.100	0.100	-0.100	-0.100	-0.100	-0.100	-0.100
POTASSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
SIL DIOXID	43.000	32.000	45.000	27.000	45.000	25.000	42.000	19.000	14.000	49.000	16.000
SODIUM	210.000	255.000	270.000	290.000	260.000	310.000	260.000	340.000	1320.000	360.000	280.000
SULFATE	610.000	540.000	630.000	570.000	600.000	550.000	600.000	580.000	240.000	780.000	500.000
SULFIDE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.150	0.040	4.400	0.600	1.000	10.000	0.700	0.400	5.500	0.600	1.400
GROS ALPHA	0.0	0.0	2.200	9.300	5.600	1.300	3.400	1.500	6.800	0.0	1.400
GRCSS BETA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.000	0.0	11.000
HARDNESS	890.000	555.000	900.000	510.000	910.000	500.000	870.000	480.000	210.000	730.000	430.000
PH	6.400	6.400	6.800	6.800	7.100	6.800	6.600	6.800	7.400	7.000	7.300
CCNDUCTANC	2050.000	1730.000	2240.000	1730.000	3120.000	2640.000	2000.000	1730.000	2975.000	1922.000	1701.000
DIS SOLIDS	1580.000	1330.000	1710.000	1360.000	1680.000	1380.000	1600.000	1430.000	3360.000	1820.000	1230.000
MANGANESE	0.420	0.110	0.300	0.050	0.300	0.090	0.200	0.080	0.500	0.200	0.100
ALKALINITY	700.000	500.000	740.000	440.000	740.000	454.000	665.000	459.000	2540.000	640.000	424.000
CYANIDE	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
BORON	-0.100	-0.010	-0.100	0.400	0.200	0.200	0.040	0.040	0.400	0.200	0.400
BARIUM	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000	-1.000
SILVER	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	0.020	-0.010	-0.010	-0.010	-0.010
NICKEL	0.030	0.030	0.030	0.030	0.040	0.030	0.030	0.020	0.060	0.040	0.030
LITHIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOC	0.0	0.0	12.000	15.000	11.000	37.000	6.000	11.000	0.0	0.0	0.0

SAMPLES	1	2	3	4	5	6	7	8	9	10	11
SPECTROGRAPHIC											
ALUMINUM	0.010	0.100	0.200	0.0	0.500	0.100	0.0	0.0	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	0.100	0.200	0.500	0.0	0.500	0.200	0.0	0.0	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	99999.000	99999.000	99999.000	0.0	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBOLT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.0	0.010	0.001	0.0	0.010	0.001	0.0	0.0	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.020	0.020	0.020	0.0	0.050	0.020	0.0	0.0	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.0	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0	0.0	0.0
LITHIUM	0.010	0.010	0.001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	99999.000	99999.000	99999.000	0.0	99999.000	99999.000	0.0	0.0	0.0	0.0	0.0
MANGANESE	0.010	0.010	0.010	0.0	0.050	0.001	0.0	0.0	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.0	0.001	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	0.100	0.100	2.000	0.0	1.000	1.000	0.0	0.0	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.0	0.0	0.0	0.200	0.100	0.0	0.0	0.0	0.0	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	10.000	10.000	5.000	0.0	5.000	5.000	0.0	0.0	0.0	0.0	0.0
SILVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	99999.000	99999.000	10.000	0.0	10.000	5.000	0.0	0.0	0.0	0.0	0.0

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GSM-4

SAMPLES	1	2	3	4	5	6	7	8	9	10	11
STRONTIUM	0.100	0.100	0.100	0.0	0.0	0.100	0.0	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.0	0.0	0.001	0.0	0.001	0.0	0.0	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
09/26/75                                   WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID GSM-5                                  PAGE 79

JOB#-741-40          CWNER-RIO BLANCO OIL SHALE PROJECT LOCATIONS: X-       0.0  Y-       0.0  Z-       0.0  MONITOR AQUIFER
DATE DRILL CCMPL- 63075  DATE CCNV TO MCNITOR- 70175  AQUIFER 1:  250.00- 280.00FT  AQUIFER 2:     0.0 -    0.0 FT


SAMPLES              1

DATE             71675
DEPTH           236.29
TEMP              53.6
LAB ID
LAB NUM           1351
METHOD               3
AQUIF.LOC.           M

WET

ALUMINUM          0.0
AMMCNIA           0.600
ARSENIC          -0.010
BICARBCNAT      450.000
CADMIUM          -0.010
CALCIUM          28.000
CARBCNATE        10.000
CHLCRIDE         23.000
CHRCMIUM         -0.010
COPPER           -0.100
FLUORIDE          0.300
HYDROXIDE         0.0
IRCN             16.900
LEAD              0.300
MAGNESIUM        62.000
MERCURY          -0.002
NITRATE           0.300
PHOSPHATE        -0.100
POTASSIUM         0.0
SELENIUM         -0.010
SIL DICXID        9.200
SODIUM          780.000
SULFATE        1520.000
SULFIDE           0.0
ZINC              1.100
GROS ALPHA        3.900
GRCSS BETA       44.000
HARDNESS        325.000
PH                6.900
CONDUCTANC     3300.000
DIS SOLIDS     2670.000
MANGANESE         0.900
ALKALINITY      370.000
CYANIDE          -0.010
BORCN             0.200
BARIUM           -1.000
SILVER           -0.010
NICKEL            0.060
LITHIUM           0.0
TOC               0.0
```

```
SAMPLES              1


SPECTROGRAPHIC

ALUMINUM         0.0
ANTIMONY         0.0
ARSENIC          0.0
BARIUM           0.0
BERYLIUM         0.0
BISMUTH          0.0
BORON            0.0
CADMIUM          0.0
CALCIUM          0.0
CERIUM           0.0
CESIUM           0.0
CHROMIUM         0.0
COBALT           0.0
COLUMBIUM        0.0
COPPER           0.0
DYSPROSIUM       0.0
ERBIUM           0.0
EUROPIUM         0.0
GADOLINIUM       0.0
GALLIUM          0.0
GERMANIUM        0.0
GOLD             0.0
HAFNIUM          0.0
HOLMIUM          0.0
INDIUM           0.0
IRIDIUM          0.0
IRON             0.0
LANTHANUM        0.0
LEAD             0.0
LITHIUM          0.0
LUTETIUM         0.0
MAGNESIUM        0.0
MANGANESE        0.0
MERCURY          0.0
MOLYBDENUM       0.0
NEODYMIUM        0.0
NICKEL           0.0
OSMIUM           0.0
PALLADIUM        0.0
PLATINUM         0.0
POTASSIUM        0.0
PRASEODYMI       0.0
RADIUM           0.0
RHENIUM          0.0
RHODIUM          0.0
RUBIDIUM         0.0
RUTHENIUM        0.0
SAMARIUM         0.0
SCANDIUM         0.0
SELENIUM         0.0
SILICON          0.0
SILVER           0.0
SODIUM           0.0
```

RBOSP

```
SAMPLES              1

STRONTIUM       0.0
TANTALUM        0.0
TERBIUM         0.0
THALLIUM        0.0
THORIUM         0.0
THULIUM         0.0
TIN             0.0
TITANIUM        0.0
TUNGSTEN        0.0
URANIUM         0.0
VANADIUM        0.0
YTTERBIUM       0.0
YTTRIUM         0.0
ZINC            0.0
ZIRCONIUM       0.0
```

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID TO-1

SAMPLES	1	2	3	4	5	6	7	8	9
SPECTROGRAPHIC									
ALUMINUM	0.0	0.050	0.100	0.200	0.100	0.0	0.0	0.0	0.0
ANTIMONY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ARSENIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BERYLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BISMUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BORON	0.0	0.500	0.500	0.500	0.100	0.0	0.0	0.0	0.0
CADMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CALCIUM	0.0	99999.000	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0
CERIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CESIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHROMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COBOLT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLUMBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COPPER	0.0	0.005	0.001	0.005	0.005	0.0	0.0	0.0	0.0
DYSPROSIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EUROPIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GADOLINIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GERMANIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GOLD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAFNIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HOLMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON	0.0	0.050	0.010	0.100	0.050	0.0	0.0	0.0	0.0
LANTHANUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LEAD	0.0	0.001	0.0	0.001	0.001	0.0	0.0	0.0	0.0
LITHIUM	0.0	0.010	0.0	0.001	0.0	0.0	0.0	0.0	0.0
LUTETIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAGNESIUM	0.0	99999.000	99999.000	99999.000	99999.000	0.0	0.0	0.0	0.0
MANGANESE	0.0	0.010	0.010	0.005	0.001	0.0	0.0	0.0	0.0
MERCURY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MOLYBDENUM	0.0	0.001	0.001	0.005	0.010	0.0	0.0	0.0	0.0
NEODYMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NICKEL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OSMIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PALLADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLATINUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POTASSIUM	0.0	2.000	1.000	2.000	1.000	0.0	0.0	0.0	0.0
PRASEODYMI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RHODIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUBIDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUTHENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SAMARIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SCANDIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SELENIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SILICON	0.0	5.000	5.000	5.000	5.000	0.0	0.0	0.0	0.0
SILVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SODIUM	0.0	99999.000	5.000	10.000	10.000	0.0	0.0	0.0	0.0

```
SAMPLES         1        2        3        4        5        6        7        8        9

STRONTIUM     0.0      0.100    0.100    0.100    0.100    0.0      0.0      0.0      0.0
TANTALUM      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TERBIUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THALLIUM      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
THORIUM       0.0      0.0      0.0      0.0      1.000    0.0      0.0      0.0      0.0
THULIUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TIN           0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
TITANIUM      0.0      0.001    0.0      0.010    0.001    0.0      0.0      0.0      0.0
TUNGSTEN      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
URANIUM       0.0      0.0      0.0      0.0     -1.500    0.0      0.0      0.0      0.0
VANADIUM      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
YTTERBIUM     0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
YTTRIUM       0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
ZINC          0.0      0.001    0.0      0.0      0.001    0.0      0.0      0.0      0.0
ZIRCONIUM     0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
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JOB#-741-40        OWNER-TOSCO                        LOCATIONS: X- 151813.11 Y- 229906.56 Z-   6993.00
DATE DRILL COMPL-110473  DATE CONV TO MONITOR-111774  AQUIFER 1:  220.00- 310.00FT  AQUIFER 2:  940.00-1020.00FT


SAMPLES             1         2         3         4         5         6         7         8         9        10

DATE            32475     42875     42975     51775     51775     61075     61075     71775     71775     71775
DEPTH          340.36    119.60    361.90    118.30    354.40    356.20    116.50    354.42    115.70    354.42
TEMP             53.6      50.0      56.3      53.6      56.5      55.6      51.6      58.1      54.5      60.8
LAB ID
LAB NUM          8162       174       173       435       434       894       895      1357      1358      1541
METHOD              3         3         3         3         3         3         3         3         3         3
AQUIF.LOC.          L         U         L         U         L         L         U         L         U         L

WET

ALUMINUM        0.200    0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
AMMONIA         1.400   -0.100     0.400     0.300     0.200     0.300     0.400    -0.100     0.400     0.200
ARSENIC        -0.010   -0.010    -0.010     0.020    -0.010    -0.010    -0.010    -0.010     0.010    -0.010
BICARBONAT    370.000  600.000   520.000   575.000   310.000   330.000   540.000   340.000   565.000   435.000
CADMIUM        -0.001   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
CALCIUM        18.000   97.000    21.000   110.000     5.000     8.200    79.000     6.600    19.000     4.900
CARBONATE      36.000   -0.100   120.000    -0.100    36.000    45.000     6.000    42.000    -0.100    60.000
CHLORIDE       15.000   87.000    21.000    20.000    14.000    20.000    20.000    12.000     9.600     9.600
CHROMIUM       -0.010   -0.050    -0.050    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
COPPER          0.100    0.100    -0.100    -0.100     0.100     0.100     0.100     0.200     0.500     0.300
FLUORIDE        4.800    0.200     0.800     0.200     0.700     0.900     0.200     0.800     0.200     1.200
HYDROXIDE       0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
IRON            3.100    7.500     2.000    16.000     5.000     6.900     7.900     2.300    16.600     1.400
LEAD            0.003    1.600     0.200     0.500     0.200     0.300     0.400     0.300     1.500     0.400
MAGNESIUM      48.000   70.000    15.000    30.000    51.000    54.000    59.000    50.000    88.000    53.000
MERCURY         0.001   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.002    -0.002    -0.002
NITRATE        -0.100    0.600     0.100    -0.100    -0.100     0.100     0.700     0.200     0.800     0.200
PHOSPHATE      -0.100   -0.100    -0.100     0.300    -0.100    -0.100    -0.100    -0.100    -0.100    -0.100
POTASSIUM       0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SELENIUM       -0.010   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
SIL DIOXID      9.500   35.000     2.700    40.000     2.000     0.700    35.000     1.700    37.000     1.900
SODIUM        210.000  250.000   400.000   170.000   190.000   180.000   190.000   185.000   200.000   285.000
SULFATE       320.000  390.000   310.000   200.000   305.000   250.000   300.000   255.000   305.000   255.000
SULFIDE         0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ZINC            0.100    0.900     0.400     0.300     0.800     0.500     0.300     0.300     1.000     2.300
GROS ALPHA      1.600    3.400     1.700     4.000     6.300     3.400     5.600     1.900     2.800     1.600
GROSS BETA     21.000    0.0     830.000     0.0       0.0       0.0       0.0       0.0       4.000     6.000
HARDNESS      240.000  530.000   110.000   400.000   220.000   240.000   440.000   220.000   410.000   230.000
PH              6.400    6.800     6.800     6.600     7.200     7.200     6.200     7.300     7.000     7.400
CONDUCTANC   1130.000 1380.000  1120.000  1420.000  1100.000  1150.000  1410.000  1091.000  1430.000  1080.000
DIS SOLIDS    840.000 1230.000  1150.000   870.000   760.000   730.000   960.000   720.000   950.000   885.000
MANGANESE       0.140    0.200     0.050     0.100     0.060     0.070     0.200     0.070     0.300    -0.050
ALKALINITY    335.000  490.000   528.000   470.000   280.000   307.000   445.000   314.000   465.000   404.000
CYANIDE        -0.010   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
BORON          -0.010   -0.100     1.100     0.300     0.400     0.050     0.100     0.200     0.080     0.400
BARIUM         -1.000   -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000    -1.000
SILVER          0.002   -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010    -0.010
NICKEL          0.002    0.040     0.030     0.020     0.020     0.020     0.020     0.020     0.020     0.010
LITHIUM         0.0      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
TOC             0.0      8.000    17.000     6.000    15.000    14.000     5.000     0.0       0.0       0.0
```

RBOSP PROGRAM [illegible]

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SAMPLES             1         2         3         4         5         6         7         8         9        10


SPECTROGRAPHIC

ALUMINUM        0.050     0.100     0.100     0.500     0.100     0.0       0.0       0.0       0.0       0.0
ANTIMONY        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ARSENIC         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
BARIUM          0.010     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
BERYLIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
BISMUTH         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
BORON           0.100     0.500     0.200     0.500     0.200     0.0       0.0       0.0       0.0       0.0
CADMIUM     99999.000     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
CALCIUM         0.0   99999.000 99999.000 99999.000 99999.000     0.0       0.0       0.0       0.0       0.0
CERIUM          0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
CESIUM          0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
CHROMIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
COBOLT          0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
COLUMBIUM       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
COPPER          0.010     0.010     0.001     0.010     0.010     0.0       0.0       0.0       0.0       0.0
DYSPROSIUM      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
ERBIUM          0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
EUROPIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
GADOLINIUM      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
GALLIUM         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
GERMANIUM       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
GOLD            0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
HAFNIUM         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
HOLMIUM         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
INDIUM          0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
IRIDIUM         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
IRON            0.100     0.100     0.100     0.100     0.010     0.0       0.0       0.0       0.0       0.0
LANTHANUM       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
LEAD            0.0       0.0       0.001     0.0       0.0       0.0       0.0       0.0       0.0       0.0
LITHIUM         0.010     0.0       0.010     0.0       0.0       0.0       0.0       0.0       0.0       0.0
LUTETIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
MAGNESIUM   99999.000 99999.000 99999.000 99999.000 99999.000     0.0       0.0       0.0       0.0       0.0
MANGANESE       0.010     0.010     0.010     0.010     0.0       0.0       0.0       0.0       0.0       0.0
MERCURY         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
MOLYBDENUM      0.001     0.0       0.001     0.001     0.0       0.0       0.0       0.0       0.0       0.0
NEODYMIUM       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
NICKEL          0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
OSMIUM          0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
PALLADIUM       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
PLATINUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
POTASSIUM       2.000     2.000     5.000     1.000     1.000     0.0       0.0       0.0       0.0       0.0
PRASEODYMI      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
RADIUM          0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
RHENIUM         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
RHODIUM         0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
RUBIDIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
RUTHENIUM       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SAMARIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SCANDIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SELENIUM        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
SILICON         5.000     5.000     2.000     5.000     5.000     0.0       0.0       0.0       0.0       0.0
SILVER          0.000     0.0       0.0       0.001     0.0       0.0       0.0       0.0       0.0       0.0
SODIUM          5.000 99999.000 99999.000     5.000     5.000     0.0       0.0       0.0       0.0       0.0
```

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID TO-2

SAMPLES	1	2	3	4	5	6	7	8	9	10
STRONTIUM	0.100	0.100	0.100	0.100	0.100	0.0	0.0	0.0	0.0	0.0
TANTALUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THALLIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THORIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
THULIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TITANIUM	0.001	0.001	0.001	0.010	0.0	0.0	0.0	0.0	0.0	0.0
TUNGSTEN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
URANIUM	0.0	0.0	-1.500	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VANADIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTERBIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YTTRIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ZINC	0.0	0.0	0.0	0.001	0.0	0.0	0.0	0.0	0.0	0.0
ZIRCONIUM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
09/26/75                      WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID TO-3                                      PAGE 25

JOB#-741-40         OWNER-TOSCO                    LOCATIONS: X- 163350.43 Y- 228948.10 Z-    6652.00
DATE DRILL COMPL-103073  DATE CONV TO MONITOR-101674  AQUIFER 1:  350.00- 440.00FT  AQUIFER 2: 1375.00-1540.00FT


SAMPLES            1          2

DATE           32175      42275
DEPTH          48.38      48.50
TEMP            64.0       59.9
LAB ID
LAB NUM         8161        175
METHOD             3          3
AQUIF.LOC.         U          U

WET

ALUMINUM      -0.010      0.0
AMMONIA        0.0        1.300
ARSENIC       -0.010     -0.010
BICARBONAT  2520.000   2170.000
CADMIUM       -0.001     -0.010
CALCIUM       34.000     29.000
CARBONATE     -0.100    170.000
CHLORIDE      55.000     50.000
CHROMIUM      -0.010      0.050
COPPER        -0.010     -0.100
FLUORIDE      60.000     27.000
HYDROXIDE      0.0        0.0
IRON           0.310      4.700
LEAD           0.002      0.200
MAGNESIUM     18.000     22.000
MERCURY        0.007     -0.010
NITRATE       -0.100      0.300
PHOSPHATE     -0.100     -0.100
POTASSIUM      0.0        0.0
SELENIUM      -0.010     -0.010
SIL DIOXID    26.000     35.000
SODIUM      1060.000   1170.000
SULFATE      140.000     65.000
SULFIDE        0.0        0.0
ZINC          -0.100      0.200
GROS ALPHA     4.000     18.000
GROSS BETA    38.000      0.0
HARDNESS     155.000    160.000
PH             7.000      7.400
CONDUCTANC  3610.000   3900.000
DIS SOLIDS  2630.000   2850.000
MANGANESE      0.240     -0.050
ALKALINITY  2065.000   2360.000
CYANIDE       -0.010     -0.010
BORON          0.150      4.400
BARIUM        -1.000     -1.000
SILVER        -0.001     -0.010
NICKEL         0.007      0.050
LITHIUM        0.0        0.0
TOC            0.0        7.000
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SAMPLES              1          2


SPECTROGRAPHIC

ALUMINUM         0.100      0.100
ANTIMONY         0.0        0.0
ARSENIC          0.0        0.0
BARIUM           0.010      0.0
BERYLIUM         0.0        0.0
BISMUTH          0.0        0.0
BORON            0.100      0.200
CADMIUM          0.0        0.0
CALCIUM      99999.000     10.000
CERIUM           0.0        0.0
CESIUM           0.0        0.0
CHROMIUM         0.0        0.0
COBALT           0.0        0.0
COLUMBIUM        0.0        0.0
COPPER           0.001      0.001
DYSPROSIUM       0.0        0.0
ERBIUM           0.0        0.0
EUROPIUM         0.0        0.0
GADOLINIUM       0.0        0.0
GALLIUM          0.0        0.0
GERMANIUM        0.0        0.0
GOLD             0.0        0.0
HAFNIUM          0.0        0.0
HOLMIUM          0.0        0.0
INDIUM           0.0        0.0
IRIDIUM          0.0        0.0
IRON             0.050      0.020
LANTHANUM        0.0        0.0
LEAD             0.0        0.0
LITHIUM          0.050      0.010
LUTETIUM         0.0        0.0
MAGNESIUM    99999.000      2.000
MANGANESE        0.001      0.001
MERCURY          0.0        0.0
MOLYBDENUM       0.001      0.0
NEODYMIUM        0.0        0.0
NICKEL           0.0        0.0
OSMIUM           0.0        0.0
PALLADIUM        0.0        0.0
PLATINUM         0.0        0.0
POTASSIUM        5.000      5.000
PRASEODYMI       0.0        0.0
RADIUM           0.0        0.500
RHENIUM          0.0        0.0
RHODIUM          0.0        0.0
RUBIDIUM         0.0        0.0
RUTHENIUM        0.0        0.0
SAMARIUM         0.0        0.0
SCANDIUM         0.0        0.0
SELENIUM         0.0        0.0
SILICON          2.000      2.000
SILVER           0.0        0.0
SODIUM       99999.000  99999.000
```

WATER QUALITY ANALYSIS RESULTS -- CORE HOLE ID TO-3

SAMPLES	1	2
STRONTIUM	0.100	0.010
TANTALUM	0.0	0.0
TERBIUM	0.0	0.0
THALLIUM	0.0	0.0
THORIUM	0.0	0.0
THULIUM	0.0	0.0
TIN	0.0	0.0
TITANIUM	0.001	0.0
TUNGSTEN	0.0	0.0
URANIUM	0.0	0.0
VANADIUM	0.0	0.0
YTTERBIUM	0.0	0.0
YTTRIUM	0.0	0.0
ZINC	0.0	0.0
ZIRCONIUM	0.0	0.0

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                                                    WATER QUALITY ANALYSIS SUMMARY                                                  PAGE  1

                                                    SAMPLE ITEM RANGE AND AVERAGE

                         LOWER AQUIFER                                 UPPER AQUIFER                               COMBINED AQUIFER
                                                 # ITEMS                                       # ITEMS                                          # ITEMS
ITEM               LOW        HIGH     AVERAGE AVERAGED       LOW        HIGH     AVERAGE AVERAGED        LOW        HIGH      AVERAGE AVERAGED

WET

ALUMINUM         -0.100      1.600      0.154     23        -0.100      1.000      0.136     18     *******************        0.0          0
AMMONIA          -0.100      2.500      0.476    112        -0.100      1.800      0.365    102     *******************        0.0          0
ARSENIC          -0.010      0.030      0.000    117        -0.010      0.040      0.001    106     *******************        0.0          0
BICARBCNAT       -0.100   7400.000    812.076    118        -0.100   2760.000    598.327    107     *******************        0.0          0
CADMIUM          -0.010      0.020      0.001    118        -0.010      0.100      0.002    107     *******************        0.0          0
CALCIUM          -1.000    515.000     41.982    118         0.800    260.000     66.916    107     *******************        0.0          0
CARBCNATE        -0.100   3160.000    110.162    118        -0.100    335.000     34.404    107     *******************        0.0          0
CHLORIDE         -1.000    160.000     27.689    118        -1.000     87.000     18.978    107     *******************        0.0          0
CHROMIUM         -0.050      0.010      0.000    116        -0.050      0.050      0.000    106     *******************        0.0          0
COPPER           -0.100      0.300      0.022    118        -0.100      0.800      0.030    107     *******************        0.0          0
FLUORIDE         -0.050     85.000      9.446    118         0.100     60.000      3.370    107     *******************        0.0          0
HYDROXIDE       880.000    890.000    885.000      2     *******************        0.0       0     *******************        0.0          0
IRCN             -0.050     16.200      2.917    118        -0.050     18.000      4.913    107     *******************        0.0          0
LEAD             -0.100     26.000      0.791    118        -0.010      3.800      0.393    107     *******************        0.0          0
MAGNESIUM        -1.000    140.000     40.549    118         3.400    150.000     54.578    107     *******************        0.0          0
MERCURY          -0.010      0.002      0.000    118        -0.010      0.045      0.001    107     *******************        0.0          0
NITRATE          -0.100      2.000      0.334    118        -0.100      7.000      0.533    107     *******************        0.0          0
PHOSPHATE        -0.100      2.400      0.044    118        -0.100      1.000      0.023    107     *******************        0.0          0
POTASSIUM      *******************      0.0        0     *******************        0.0       0     *******************        0.0          0
SELENIUM         -0.010     -0.001      0.0      118        -0.010     -0.010      0.0      107     *******************        0.0          0
SIL DICXID       -0.100     32.000      9.059    118        -0.100     58.000     25.089    107     *******************        0.0          0
SODIUM           86.000   2950.000    437.085    118       110.000   1170.000    278.925    107     *******************        0.0          0
SULFATE         -10.000    740.000    236.564    118        -4.000    900.000    356.448    107     *******************        0.0          0
SULFIDE        *******************      0.0        0     *******************        0.0       0     *******************        0.0          0
ZINC             -0.100     68.000      1.666    118        -0.100     15.000      0.805    107     *******************        0.0          0
GROS ALPHA        0.100     86.000      5.804     90         0.200     29.000      4.273     77     *******************        0.0          0
GROSS BETA        3.000    830.000     78.960     25         4.000     73.000     17.000     11     *******************        0.0          0
HARDNESS         20.000   1260.000    267.958    118        16.000   1110.000    392.065    107     *******************        0.0          0
PH                6.000     12.200      7.326    118         6.000     10.200      6.863    107     *******************        0.0          0
CONDUCTANC      760.000  12000.000   2038.169    118       810.000   4200.000   1596.261    107     *******************        0.0          0
DIS SOLIDS      430.000   6870.000   1356.313    118       540.000   2850.000   1147.103    107     *******************        0.0          0
MANGANESE        -0.050      0.500      0.067    118        -0.050      0.780      0.159    107     *******************        0.0          0
ALKALINITY       25.000   6185.000    792.663    118        36.000   2360.000    522.361    107     *******************        0.0          0
CYANIDE          -0.010      0.030      0.000    117        -0.010     -0.010      0.0      106     *******************        0.0          0
BORCN            -0.100     25.000      1.375    118        -0.100      4.800      0.641    107     *******************        0.0          0
BARIUM           -1.000     -0.100      0.0      118        -1.000     -0.100      0.0      107     *******************        0.0          0
SILVER           -0.010      0.110      0.004    118        -0.100      0.100      0.007    107     *******************        0.0          0
NICKEL           -0.100      0.100      0.023    118        -0.010      0.200      0.026    107     *******************        0.0          0
LITHIUM        *******************      0.0        0     *******************        0.0       0     *******************        0.0          0
TOC               1.000     37.000      8.971     68         1.000     34.000      8.136     66     *******************        0.0          0

SPECTROGRAPHIC

ALUMINUM          0.001      5.000      0.215     51         0.001      0.500      0.152     47     *******************        0.0          0
ANTIMCNY       *******************      0.0        0     *******************        0.0       0     *******************        0.0          0
ARSENIC        *******************      0.0        0     *******************        0.0       0     *******************        0.0          0
BARIUM            0.001      0.050      0.018      4         0.001      0.010      0.007      3     *******************        0.0          0
BERYLIUM       *******************      0.0        0     *******************        0.0       0     *******************        0.0          0
BISMUTH        *******************      0.0        0     *******************        0.0       0     *******************        0.0          0
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                                 WATER QUALITY ANALYSIS SUMMARY                                                  PAGE  2

                                 SAMPLE ITEM RANGE AND AVERAGE

                 LOWER AQUIFER                                 UPPER AQUIFER                                 COMBINED AQUIFER
                                          # ITEMS                                       # ITEMS                                       # ITEMS
ITEM               LOW      HIGH   AVERAGE AVERAGED        LOW      HIGH   AVERAGE AVERAGED        LOW      HIGH   AVERAGE AVERAGED

BORON            0.100     2.000   0.328    50           0.100     1.000   0.294    47    *******************    0.0       0
CADMIUM      99999.000 99999.000   0.0       0     *******************    0.0       0    *******************    0.0       0
CALCIUM          5.000 99999.000   8.750     8           1.000 99999.000   7.000     3    *******************    0.0       0
CERIUM     *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
CESIUM     *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
CHROMIUM         0.001     0.001   0.001     1     *******************    0.0       0    *******************    0.0       0
COBOLT     *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
COLUMBIUM  *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
COPPER           0.001     0.020   0.007    43           0.001     0.010   0.006    41    *******************    0.0       0
DYSPROSIUM *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
ERBIUM     *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
EUROPIUM   *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
GADOLINIUM *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
GALLIUM    *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
GERMANIUM  *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
GOLD       *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
HAFNIUM    *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
HOLMIUM    *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
INDIUM     *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
IRIDIUM    *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
IRON             0.010     0.500   0.083    50           0.010     1.000   0.131    47    *******************    0.0       0
LANTHANUM  *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
LEAD             0.001     0.500   0.058    13           0.001     0.200   0.043    18    *******************    0.0       0
LITHIUM          0.001     0.100   0.031    26           0.001     0.500   0.043    26    *******************    0.0       0
LUTETIUM   *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
MAGNESIUM        5.000 99999.000   5.833     6           2.000 99999.000   6.000     2    *******************    0.0       0
MANGANESE        0.001     0.200   0.042    39           0.001     0.200   0.046    38    *******************    0.0       0
MERCURY    *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
MOLYBDENUM       0.001     0.100   0.011    36           0.001     0.500   0.039    30    *******************    0.0       0
NEODYMIUM  *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
NICKEL     *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
OSMIUM     *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
PALLADIUM  *******************    0.0       0            0.100     0.100   0.100     1    *******************    0.0       0
PLATINUM   *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
POTASSIUM        0.050    10.000   1.823    50           0.100     5.000   1.704    45    *******************    0.0       0
PRASEODYMI *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
RADIUM           0.100     1.400   0.415    13           0.100     0.800   0.233    15    *******************    0.0       0
RHENIUM    *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
RHODIUM    *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
RUBIDIUM   *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
RUTHENIUM  *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
SAMARIUM   *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
SCANDIUM   *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
SELENIUM   *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
SILICON         -0.500    20.000   6.686    51           2.000    20.000   8.021    47    *******************    0.0       0
SILVER           0.000     0.001   0.000     7          -0.001     0.001   0.001     9    *******************    0.0       0
SODIUM           5.000 99999.000   7.500    16           2.000 99999.000   8.231    13    *******************    0.0       0
STRONTIUM        0.010 99999.000   0.147    44           0.001     1.000   0.139    39    *******************    0.0       0
TANTALUM   *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
TERBIUM    *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
THALLIUM   *******************    0.0       0     *******************    0.0       0    *******************    0.0       0
THORIUM          1.000     1.000   1.000     1     *******************    0.0       0    *******************    0.0       0
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                                        WATER QUALITY ANALYSIS SUMMARY

                                        SAMPLE ITEM RANGE AND AVERAGE

                     LOWER AQUIFER                           UPPER AQUIFER                          COMBINED AQUIFER
                                                # ITEMS                                  # ITEMS                                   # ITEMS
ITEM            LOW        HIGH      AVERAGE AVERAGED     LOW        HIGH      AVERAGE AVERAGED     LOW        HIGH      AVERAGE AVERAGED

THULIUM    *******************       0.0        0     *******************     0.0        0     *******************     0.0         0
TIN        *******************       0.0        0     *******************     0.0        0     *******************     0.0         0
TITANIUM        0.001      0.010     0.003     23         0.001      0.010     0.005     23     *******************     0.0         0
TUNGSTEN   *******************       0.0        0     *******************     0.0        0     *******************     0.0         0
URANIUM        -1.500     -1.500     0.0        2     *******************     0.0        0     *******************     0.0         0
VANADIUM   *******************       0.0        0         0.001      0.001     0.001      1     *******************     0.0         0
YTTERBIUM  *******************       0.0        0     *******************     0.0        0     *******************     0.0         0
YTTRIUM    *******************       0.0        0     *******************     0.0        0     *******************     0.0         0
ZINC            0.001      0.200     0.029     10         0.001      0.200     0.031     17     *******************     0.0         0
ZIRCONIUM  *******************       0.0        0     *******************     0.0        0     *******************     0.0         0

           SAMPLES IN AQUIFER =  118              SAMPLES IN AQUIFER =  107              SAMPLES IN AQUIFER =     0
```

RDOSP PRO

NNN-J23-0000

```
                                            WATER QUALITY ANALYSIS SUMMARY

                                            SAMPLE ITEM RANGE AND AVERAGE

                           A ALUIFER
                                                     # ITEMS                                           # ITEMS                                           # ITEMS
ITEM                LOW        HIGH      AVERAGE AVERAGED        LOW        HIGH      AVERAGE AVERAGED        LOW        HIGH      AVERAGE AVERAGED

WET

ALUMINUM          -0.100      -0.100       0.0        4      *******************       0.0        0      *******************       0.0        0
AMMCNIA           -0.100       1.000       0.287     39      *******************       0.0        0      *******************       0.0        0
ARSENIC           -0.010       0.010       0.000     49      *******************       0.0        0      *******************       0.0        0
BICARBONAT       370.000     750.000     566.735     49      *******************       0.0        0      *******************       0.0        0
CADMIUM           -0.010       0.090       0.009     49      *******************       0.0        0      *******************       0.0        0
CALCIUM           28.000     210.000      99.163     49      *******************       0.0        0      *******************       0.0        0
CARBCNATE         -0.100      54.000       5.510     49      *******************       0.0        0      *******************       0.0        0
CHLORIDE           6.800      71.000      17.698     49      *******************       0.0        0      *******************       0.0        0
CHRCMIUM          -0.050      -0.010       0.0       49      *******************       0.0        0      *******************       0.0        0
COPPER            -0.100       0.300       0.033     49      *******************       0.0        0      *******************       0.0        0
FLUORIDE          -0.100       0.800       0.333     48      *******************       0.0        0      *******************       0.0        0
HYDRCXIDE     *******************          0.0        0      *******************       0.0        0      *******************       0.0        0
IRCN              -0.050      28.000       8.018     49      *******************       0.0        0      *******************       0.0        0
LEAD               0.020       0.800       0.214     49      *******************       0.0        0      *******************       0.0        0
MAGNESIUM          3.700     874.000      94.939     49      *******************       0.0        0      *******************       0.0        0
MERCURY           -0.010       0.002       0.000     49      *******************       0.0        0      *******************       0.0        0
NITRATE           -0.100      21.000       5.106     49      *******************       0.0        0      *******************       0.0        0
PHCSPHATE         -0.100       0.200       0.010     49      *******************       0.0        0      *******************       0.0        0
POTASSIUM     *******************          0.0        0      *******************       0.0        0      *******************       0.0        0
SELENIUM          -0.100      -0.010       0.0       49      *******************       0.0        0      *******************       0.0        0
SIL DIOXID        22.000      44.000      32.327     49      *******************       0.0        0      *******************       0.0        0
SODIUM            75.000     310.000     191.531     49      *******************       0.0        0      *******************       0.0        0
SULFATE          145.000     780.000     423.877     49      *******************       0.0        0      *******************       0.0        0
SULFIDE       *******************          0.0        0      *******************       0.0        0      *******************       0.0        0
ZINC              -0.100       5.700       0.625     48      *******************       0.0        0      *******************       0.0        0
GROS ALPHA         1.400      17.000       8.764     28      *******************       0.0        0      *******************       0.0        0
GRCSS BETA         1.000      12.000       6.250      4      *******************       0.0        0      *******************       0.0        0
HARDNESS         280.000     765.000     570.816     49      *******************       0.0        0      *******************       0.0        0
PH                 6.000       7.200       6.665     49      *******************       0.0        0      *******************       0.0        0
CCNDUCTANC       860.000    2370.000    1565.518     49      *******************       0.0        0      *******************       0.0        0
DIS SOLIDS       640.000    1670.000    1134.592     49      *******************       0.0        0      *******************       0.0        0
MANGANESE         -0.050      14.000       2.298     49      *******************       0.0        0      *******************       0.0        0
ALKALINITY       329.000     615.000     469.308     49      *******************       0.0        0      *******************       0.0        0
CYANIDE           -0.010       0.010       0.001     49      *******************       0.0        0      *******************       0.0        0
BORCN             -0.010      27.000       1.783     49      *******************       0.0        0      *******************       0.0        0
BARIUM            -1.000      -1.000       0.0       49      *******************       0.0        0      *******************       0.0        0
SILVER            -0.100       0.070       0.003     49      *******************       0.0        0      *******************       0.0        0
NICKEL             0.010       0.200       0.049     49      *******************       0.0        0      *******************       0.0        0
LITHIUM       *******************          0.0        0      *******************       0.0        0      *******************       0.0        0
TOC                7.000     100.000      33.100     20      *******************       0.0        0      *******************       0.0        0

SPECTRCGRAPHIC

ALUMINUM           0.050       0.500       0.161      9      *******************       0.0        0      *******************       0.0        0
ANTIMCNY      *******************          0.0        0      *******************       0.0        0      *******************       0.0        0
ARSENIC       *******************          0.0        0      *******************       0.0        0      *******************       0.0        0
BARIUM        *******************          0.0        0      *******************       0.0        0      *******************       0.0        0
BERYLIUM      *******************          0.0        0      *******************       0.0        0      *******************       0.0        0
BISMUTH       *******************          0.0        0      *******************       0.0        0      *******************       0.0        0
```

```
                                   WATER QUALITY ANALYSIS SUMMARY

                                   SAMPLE ITEM RANGE AND AVERAGE

                  A AQUIFER
                                          # ITEMS                                     # ITEMS                                     # ITEMS
ITEM             LOW       HIGH    AVERAGE AVERAGED     LOW       HIGH    AVERAGE AVERAGED     LOW       HIGH    AVERAGE AVERAGED

BORON              0.100     0.500   0.267     9     *******************    0.0        0     *******************    0.0       0
CADMIUM          *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
CALCIUM          99999.000 99999.000   0.0       0     *******************    0.0        0     *******************    0.0       0
CERIUM           *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
CESIUM             0.001     0.001   0.001     1     *******************    0.0        0     *******************    0.0       0
CHROMIUM           0.000     0.000   0.000     1     *******************    0.0        0     *******************    0.0       0
COBOLT           *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
COLUMBIUM        *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
COPPER             0.001     0.010   0.004     8     *******************    0.0        0     *******************    0.0       0
DYSPROSIUM       *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
ERBIUM           *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
EUROPIUM         *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
GADOLINIUM       *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
GALLIUM          *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
GERMANIUM        *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
GOLD             *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
HAFNIUM          *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
HOLMIUM          *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
INDIUM           *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
IRIDIUM          *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
IRON               0.010     0.100   0.044     9     *******************    0.0        0     *******************    0.0       0
LANTHANUM        *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
LEAD               0.001     0.001   0.001     3     *******************    0.0        0     *******************    0.0       0
LITHIUM            0.001     0.100   0.042     5     *******************    0.0        0     *******************    0.0       0
LUTETIUM         *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
MAGNESIUM        99999.000 99999.000   0.0       0     *******************    0.0        0     *******************    0.0       0
MANGANESE          0.001     0.100   0.017     9     *******************    0.0        0     *******************    0.0       0
MERCURY          *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
MOLYBDENUM         0.001     0.050   0.016     8     *******************    0.0        0     *******************    0.0       0
NEODYMIUM        *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
NICKEL           *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
OSMIUM           *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
PALLADIUM        *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
PLATINUM         *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
POTASSIUM          0.100     2.000   0.656     9     *******************    0.0        0     *******************    0.0       0
PRASEODYMI       *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
RADIUM             0.100     0.700   0.256    18     *******************    0.0        0     *******************    0.0       0
RHENIUM          *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
RHODIUM          *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
RUBIDIUM         *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
RUTHENIUM        *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
SAMARIUM         *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
SCANDIUM         *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
SELENIUM         *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
SILICON            2.000    20.000   8.000     9     *******************    0.0        0     *******************    0.0       0
SILVER             0.000     0.000   0.000     1     *******************    0.0        0     *******************    0.0       0
SODIUM             2.000 99999.000   5.400     5     *******************    0.0        0     *******************    0.0       0
STRONTIUM          0.100     0.100   0.100     6     *******************    0.0        0     *******************    0.0       0
TANTALUM         *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
TERBIUM          *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
THALLIUM         *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
THORIUM          *******************   0.0       0     *******************    0.0        0     *******************    0.0       0
```

```
                                   WATER QUALITY ANALYSIS SUMMARY

                                   SAMPLE ITEM RANGE AND AVERAGE

                   A AQUIFER
                                          # ITEMS                                          # ITEMS                                          # ITEMS
ITEM             LOW         HIGH      AVERAGE AVERAGED      LOW         HIGH      AVERAGE AVERAGED      LOW         HIGH      AVERAGE AVERAGED

THULIUM      ********************       0.0        0     ********************       0.0        0     ********************       0.0        0
TIN          ********************       0.0        0     ********************       0.0        0     ********************       0.0        0
TITANIUM          0.001       0.010     0.004      8     ********************       0.0        0     ********************       0.0        0
TUNGSTEN     ********************       0.0        0     ********************       0.0        0     ********************       0.0        0
URANIUM      ********************       0.0        0     ********************       0.0        0     ********************       0.0        0
VANADIUM     ********************       0.0        0     ********************       0.0        0     ********************       0.0        0
YTTERBIUM    ********************       0.0        0     ********************       0.0        0     ********************       0.0        0
YTTRIUM      ********************       0.0        0     ********************       0.0        0     ********************       0.0        0
ZINC              0.001       0.001     0.001      2     ********************       0.0        0     ********************       0.0        0
ZIRCONIUM    ********************       0.0        0     ********************       0.0        0     ********************       0.0        0

             SAMPLES IN AQUIFER =    49              SAMPLES IN AQUIFER =     0              SAMPLES IN AQUIFER =     0
```

UPPER AND LOWER AQUIFER MONITORING

SECTION 1.2.7

Chemical Constituent Distribution Maps

RBOSP PROGRESS REPORT

EXPLANATION

CHEMICAL CONSTITUENT DISTRIBUTION MAPS

Aquifer Location
U = Upper Aquifer
L = Lower Aquifer

Sampling Method
1. Drilling Program
2. Pumping Test
3. Monitoring Program

Values
Average: Mean of all values for the given method.
Highest: Highest value for given method.
Lowest: Lowest value for given method.
Unit: Single value for each hole from monthly sample.

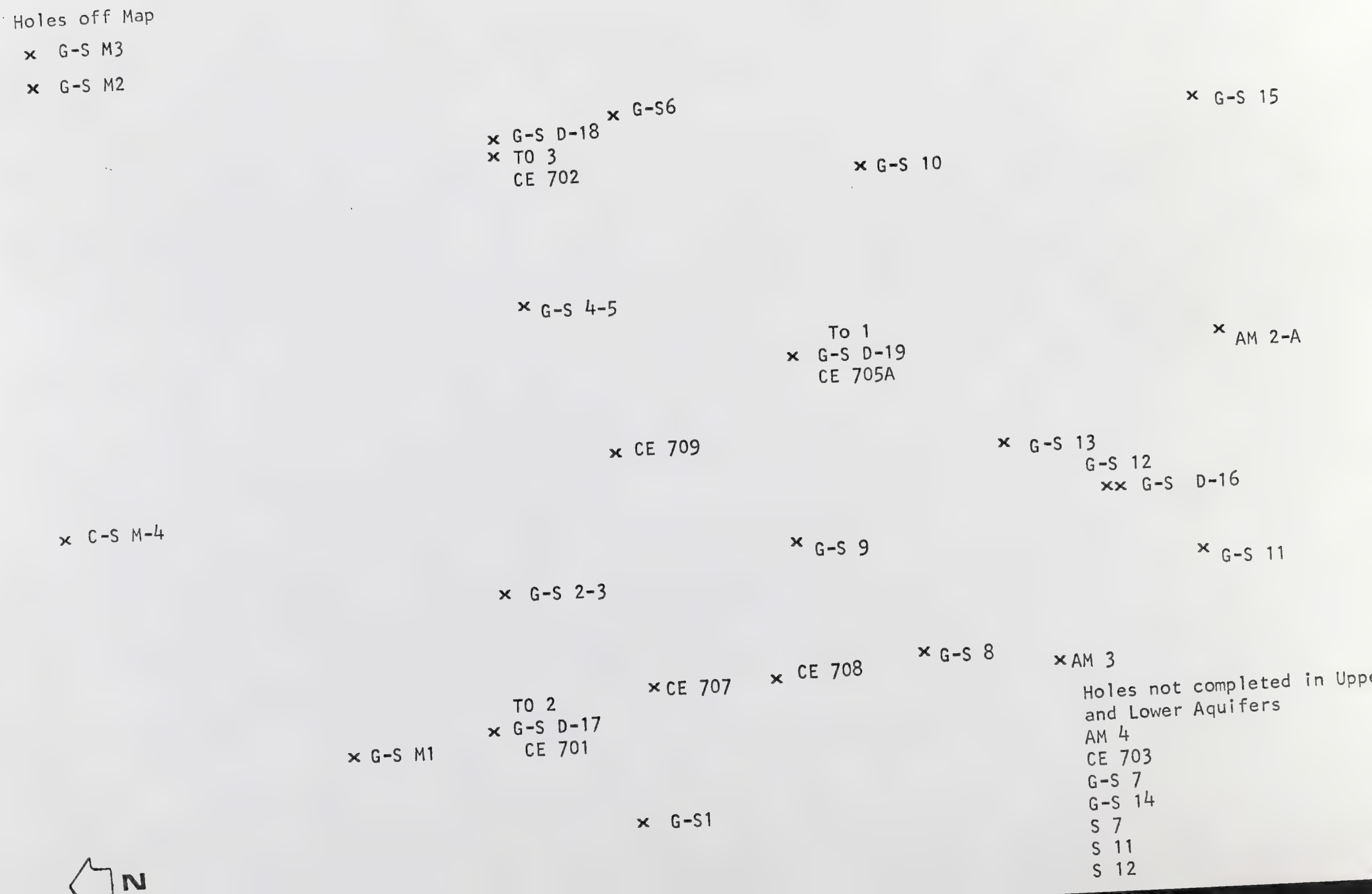
Wet - Wet Chemical Analysis: Values in milligrams per liter (mg/l) approximately equivalent to parts per million (ppm) except for pH.

.000 value - constituent not tested for.

Spectrographic - Qualitative Spectrographic Analysis: Values in milligrams per liter (mg/l), approximately equivalent ot parts per million (ppm).

.000 value means less than minimum detectable amount.

CORE ANALYSIS REPORT
CORE HOLE LOCATIONS

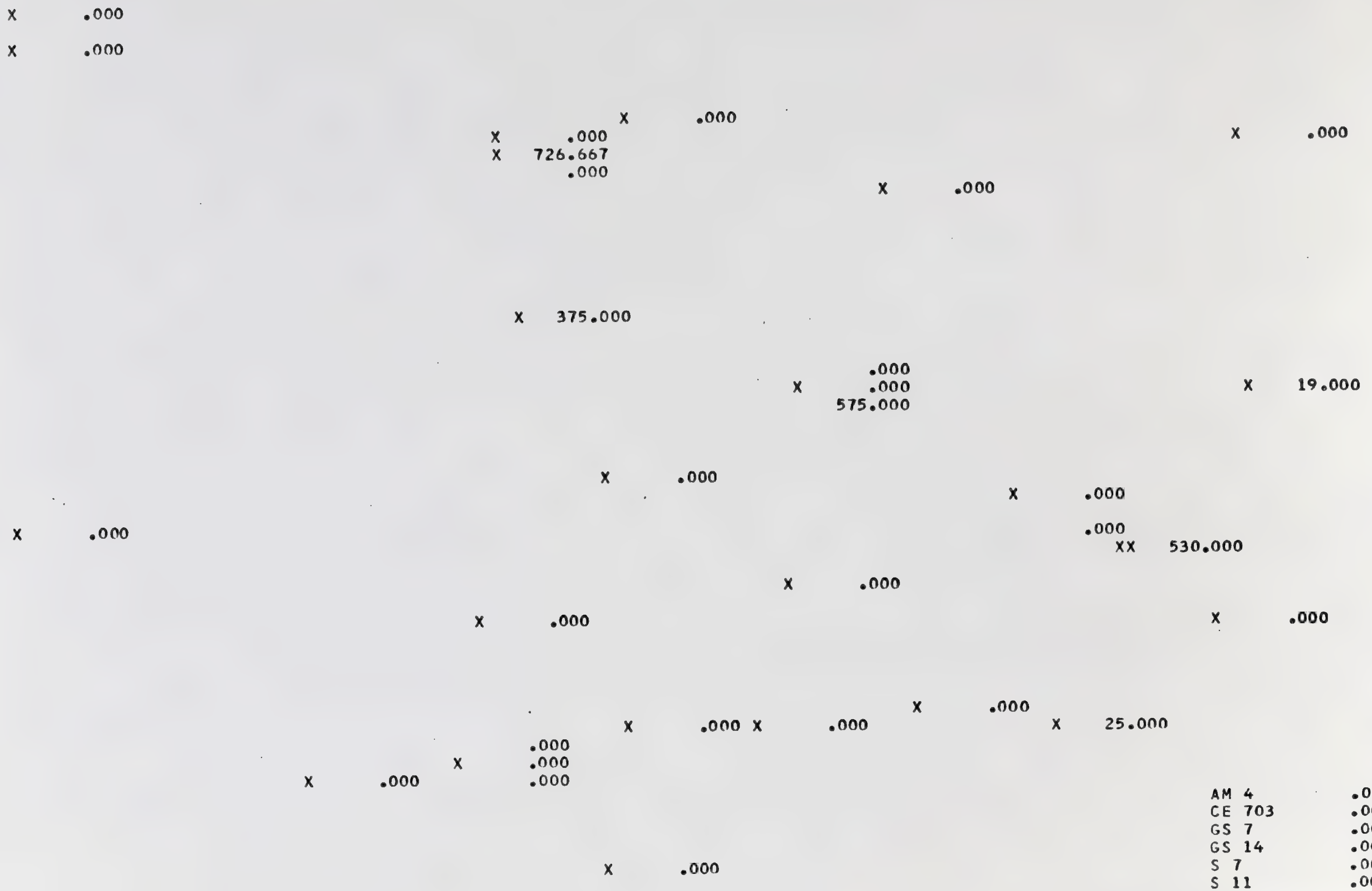

Holes off Map
× G-S M3
× G-S M2
× G-S6
× G-S D-18
× TO 3
CE 702
× G-S 10
× G-S 15
× G-S 4-5
To 1
× G-S D-19
CE 705A
× AM 2-A
× CE 709
× G-S 13
G-S 12
×× G-S D-16
× C-S M-4
× G-S 9
× G-S 11
× G-S 2-3
× G-S 8
× AM 3
× CE 707
× CE 708
TO 2
× G-S D-17
CE 701
× G-S M1
× G-S1
N

Holes not completed in Uppe
and Lower Aquifers
AM 4
CE 703
G-S 7
G-S 14
S 7
S 11
S 12

09/26/75

CORE ANALYSIS REPORT

AVERAGE WET ALKALINITY AQUIFER U METHOD 2 FROM: TO:


X .000
X .000
X .000
X .000
X 726.667
.000
X .000
X .000
X 375.000
.000
X .000
575.000
X 19.000
X .000
X .000
X .000
.000
XX 530.000
X .000
X .000
X .000
X .000 X .000
X .000
X 25.000
.000
X .000
.000
X .000
X .000

AM 4	.000
CE 703	.000
GS 7	.000
GS 14	.000
S 7	.000
S 11	.000
S 12	.000

```
                                                        CORE ANALYSIS REPORT                        TO:
09/26/75                AVERAGE     WET            ALKALINITY  AQUIFER U METHOD  3  FROM:


    X   422.000
    X   506.000
                                                              X  465.600                                           X  339.000
                                                  X      .000
                                                  X  2212.500
                                                     2171.600                         X   702.800


                                                     X   433.333
                                                                                   138.500                          X   432.667
                                                                                X     .000
                                                                                   310.000
                                                              X   376.600                          X   445.750
                                                                                                            .000
                                                                                                              XX   215.500
        X   697.000                                                             X   519.000                         X   349.740
                                                    X  387.333
                                                                                             X      .000  X   198.250
                                                                  X   526.000 X   436.800
                                                      467.500                                                            AM 4         .000
                                                  X      .000                                                            CE 703       .000
                                     X   318.000      129.950                                                            GS 7         .000
                                                                                                                         GS 14        .000
                                                                                                                         S 7          .000
                                                                 X   379.833                                             S 11         .000
                                                                                                                         S 12         .000
```

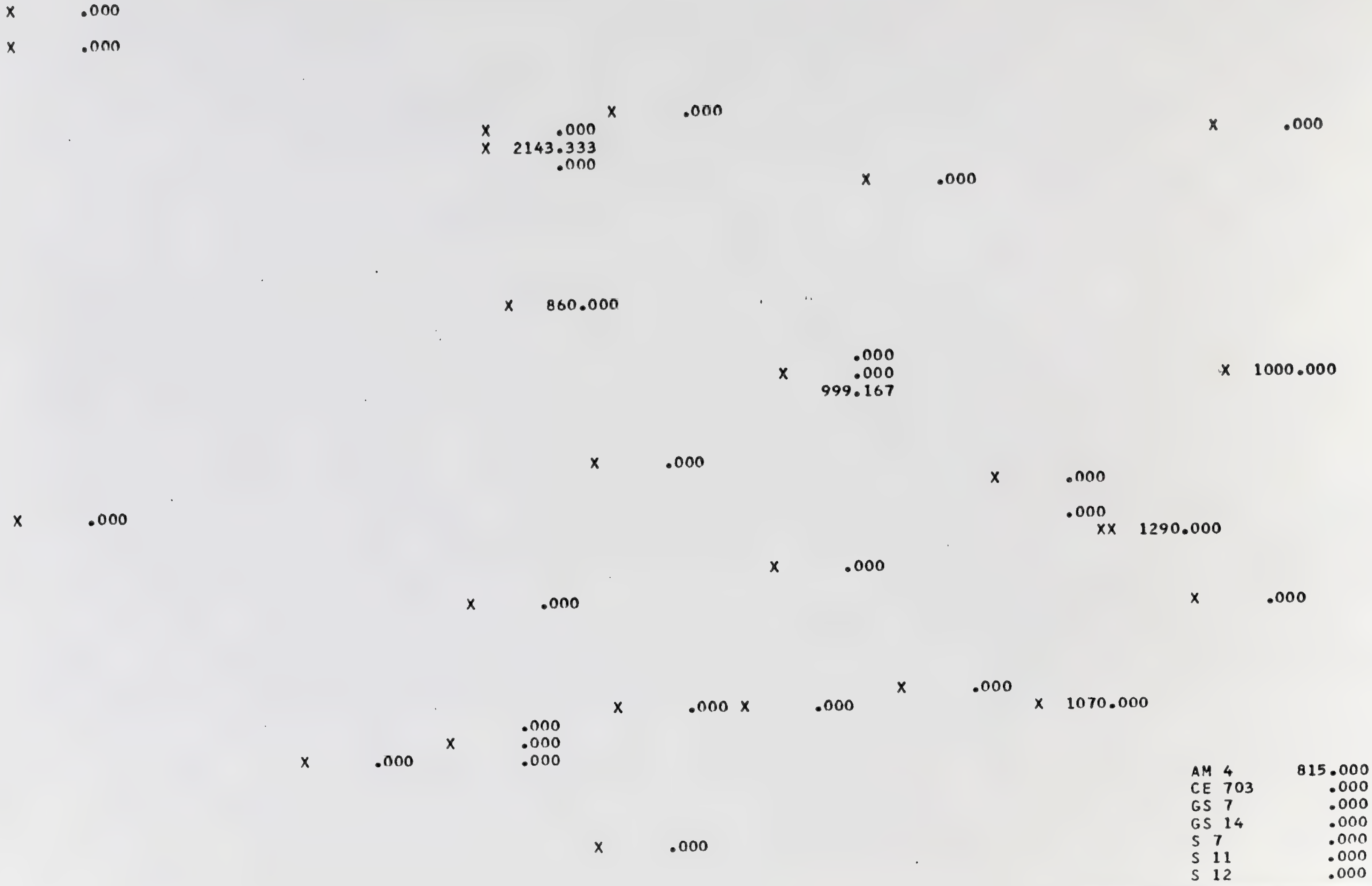
RBOSP

```
                                                              CORE ANALYSIS REPORT
                               AVERAGE    WET
                                                         ALKALINITY  AQUIFER L METHOD  2  FROM:           TO:

          X     .000

          X     .000



                                                                  X     .000
                                                      X 5592.500
                                                      X     .000
                                                        3215.000                                                          X     .000

                                                                                         X      .000




                                                       X      .000



                                                                                       .000
                                                                                X  1498.333
                                                                                       .000                               X     .099


                                                              X     .000
        X     .000
                                                                                                   X      .000

                                                                                                      1853.500
                                                                                                            XX   537.500
                                                                              X      .000
                                                  X     .000

                                                                                                                     X      .000



                                                               X      .000 X      .000   X     .000
                                                      .000
                                                                                                      X     6.199
                                 X      .000  X   525.909
                                                   682.500


                                                                                                                    AM 4         .000
                                                                                                                    CE 703       .000
                                                            X     .000                                              GS 7         .000
                                                                                                                    GS 14        .000
                                                                                                                    S 7          .000
                                                                                                                    S 11         .000
                                                                                                                    S 12         .000
                                                         CORE ANALYSIS REPORT
  09/26/75                                                                                            TO:
                                                     ALKALINITY  AQUIFER L METHOD  3  FROM:
                          AVERAGE     WET



      X   675.000

      X   425.000

                                                               X  2345.800                                                    X  2050.000
                                                   X      .000
                                                   X      .000
                                                      2412.600                              X   796.340




                                                      X  1299.000

                                                                                   960.000                                     X  2270.000
                                                                                X       .000
                                                                                        .000


                                                              X   268.000                         X  1670.000
                                                                                                     2180.000
                                                                                                            XX  1770.000
        X  2540.000
                                                                               X   929.000                                    X  1679.000

                                                   X  1129.000


                                                                                            X   900.000     X   273.200
                                                                 X  1154.000 X   400.750
                                                     361.333                                                                 AM 4           .000
                                                  X  665.500                                                                 CE 703         .000
                                    X   368.280         .000                                                                 GS 7           .000
                                                                                                                             GS 14          .000
                                                                                                        :                    S  7           .000
                                                                X   879.000                                                  S  11          .000
                                                                                                                             S  12          .000
```

09/26/75

CORE ANALYSIS REPORT

AVERAGE WET DIS SOLIDS AQUIFER U METHOD 2 FROM: TO:

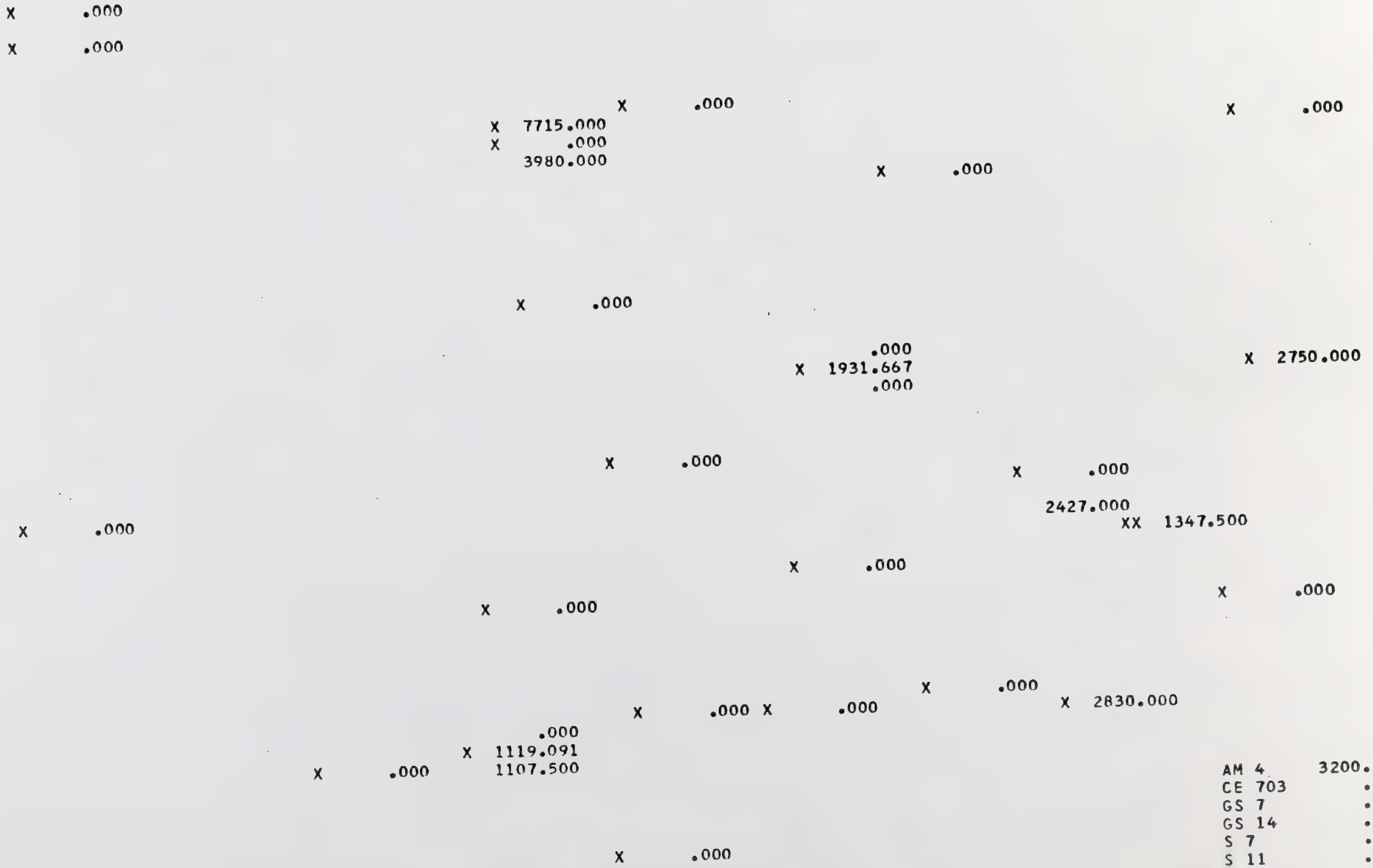

X .000
X .000
X .000
X .000
X 2143.333
.000
X .000
X .000
X 860.000
.000
X .000
999.167
X 1000.000
X .000
X .000
X .000
.000
XX 1290.000
X .000
X .000
X .000
X .000
X .000 X .000
X 1070.000
.000
X .000
.000
X .000
X .000

AM 4	815.000
CE 703	.000
GS 7	.000
GS 14	.000
S 7	.000
S 11	.000
S 12	.000

09/26/75

CORE ANALYSIS REPORT

AVERAGE WET DIS SOLIDS AQUIFER L METHOD 2 FROM: TO:


X .000
X .000
X .000
X 7715.000
X .000
3980.000
X .000
X .000
X .000
.000
X 1931.667
.000
X 2750.000
X .000
X .000
2427.000
XX 1347.500
X .000
X .000
X .000
X .000
X .000 X .000
X .000
X 2830.000
.000
X 1119.091
1107.500
X .000
X .000

AM 4 3200.000
CE 703 .000
GS 7 .000
GS 14 .000
S 7 .000
S 11 .000
S 12 .000

RBCSP PROGRESS REPORT

```
    09/26/75                                                 CORE ANALYSIS REPORT
                            AVERAGE     WET             DIS SOLIDS  AQUIFER U METHOD  3  FROM:            TO:



       X  1064.000

       X  1404.000



                                                                 X   676.000
                                                     X      .000                                                           X   900.000
                                                     X  2740.000
                                                        2698.000
                                                                                          X  1952.000






                                                       X   926.667


                                                                                     637.500
                                                                                 X      .000                                X  1000.000
                                                                                     730.000



                                                               X   888.000
                                                                                                      X  1075.000

       X  1678.000                                                                                        .000
                                                                                                                XX   996.250

                                                                                X  1200.000

                                                   X   986.667                                                           X   853.000




                                                                                             X      .000
                                                                 X  1166.000 X   996.000                  X   685.000
                                                    1002.500
                                                 X      .000
                                   X   834.000       765.000
                                                                                                                         AM 4         .000
                                                                                                                         CE 703       .000
                                                                                                                         GS 7         .000
                                                                                                                         GS 14        .000
                                                               X   861.667                                               S 7          .000
                                                                                                                         S 11         .000
                                                                                                                         S 12         .000
```

```
                                                           CORE ANALYSIS REPORT
    09/26/75
                            AVERAGE     WET            DIS SOLIDS  AQUIFER L METHOD  3  FROM:           TO:


       X   820.000
       X  1262.500

                                                                X  2214.000                                              X  2950.000
                                                     X     .000
                                                     X     .000
                                                       3234.000                         X  1618.000


                                                       X 1690.000

                                                                                    1320.000                               X  2850.000
                                                                                 X      .000
                                                                                        .000

                                                               X  1070.000                           X  2330.000
                                                                                                        2950.000
        X  3360.000                                                                                            XX  2470.000
                                                                                X  1240.000
                                                                                                                        X  2140.000
                                                    X 1400.000

                                                                                             X 1460.000
                                                                  X 1620.000  X  705.000                  X  687.000
                                                     847.500
                                                  X 1235.000
                                    X  754.000           .000                                                           AM 4          .000
                                                                                                                        CE 703        .000
                                                                                                                        GS 7          .000
                                                                                                                        GS 14         .000
                                                                                                                        S 7           .000
                                                                X  1320.000                                             S 11          .000
                                                                                                                        S 12          .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        HIGHEST     WET            DIS SOLIDS  AQUIFER U METHOD  3  FROM:           TO:




   X  1190.000

   X  1460.000



                                                            X   730.000
                                                X      .000                                                          X   900.000
                                                X  2850.000
                                                   2790.000
                                                                                    X  2030.000






                                                  X   980.000


                                                                                900.000
                                                                            X      .000                               X  1160.000
                                                                                730.000



                                                          X   970.000
                                                                                                X  1190.000

   X  1820.000                                                                                         .000
                                                                                                          XX  1250.000

                                                                           X  1310.000

                                              X  1150.000                                                          X  1060.000




                                                                                       X      .000
                                                            X  1420.000 X  1120.000                 X   830.000
                                               1230.000
                                            X      .000
                               X  910.000       820.000
                                                                                                                  AM 4         .000
                                                                                                                  CE 703       .000
                                                                                                                  GS 7         .000
                                                                                                                  GS 14        .000
                                                          X   970.000                                             S 7          .000
                                                                                                                  S 11         .000
                                                                                                                  S 12         .000
```

```
  09/26/75                                                CORE ANALYSIS REPORT
                          HIGHEST     WET            DIS SOLIDS  AQUIFER L METHOD  3  FROM:           TO:


     X   820.000

     X  1300.000

                                                              X  2780.000                                                 X  2950.000
                                                  X      .000
                                                  X      .000
                                                     3640.000
                                                                                      X  1740.000


                                                     X  1690.000

                                                                                 1320.000                                  X  2850.000
                                                                              X      .000
                                                                                     .000

                                                             X  1070.000                            X  2330.000

                                                                                                       2950.000
      X  3360.000                                                                                            XX  2470.000

                                                                              X  1240.000
                                                                                                                     X  2140.000
                                                 X  1400.000

                                                                                           X  1460.000
                                                               X  1620.000 X   750.000                X   725.000
                                                  1150.000
                                               X  1250.000
                                 X  1000.000          .000
                                                                                                                   AM 4          .000
                                                                                                                   CE 703        .000
                                                                                                                   GS 7          .000
                                                                                                                   GS 14         .000
                                                               X  1320.000                                         S 7           .000
                                                                                                                   S 11          .000
                                                                                                                   S 12          .000
```

```
09/26/75                                                 CORE ANALYSIS REPORT

                        LOWEST       WET   .        DIS SOLIDS  AQUIFER U METHOD  3  FROM:           TO:





   X   880.000

   X  1360.000



                                                              X  620.000
                                                 X      .000                                                            X   900.000
                                                 X  2630.000
                                                    2570.000
                                                                                      X  1910.000






                                                    X  840.000


                                                                                  540.000
                                                                              X      .000                                X   890.000
                                                                                  730.000



                                                            X   800.000
                                                                                                   X 1010.000

    X  1580.000                                                                                          .000
                                                                                                            XX   820.000

                                                                             X   980.000

                                                X   820.000                                                           X   780.000




                                                                                          X     .000
                                                              X  1030.000 X   900.000                 X   600.000
                                                 870.000
                                              X      .000
                                X   720.000      710.000
                                                                                                                     AM 4         .000
                                                                                                                     CE 703       .000
                                                                                                                     GS 7         .000
                                                                                                                     GS 14        .000
                                                            X   730.000                                              S 7          .000
                                                                                                                     S 11         .000
                                                                                                                     S 12         .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        LOWEST      WET            DIS SOLIDS   AQUIFER L METHOD  3  FROM:           TO:





   X   820.000

   X  1220.000



                                                             X  1880.000
                                                 X      .000                                                          X  2950.000
                                                 X      .000
                                                   2980.000
                                                                                     X  1520.000






                                                   X  1690.000


                                                                                1320.000
                                                                             X      .000                               X  2850.000
                                                                                    .000



                                                           X  1070.000
                                                                                                 X  2330.000

   X  3360.000                                                                                      2950.000
                                                                                                           XX  2470.000

                                                                            X  1240.000

                                              X  1400.000                                                           X  2140.000




                                                                                        X  1460.000
                                                             X  1620.000 X   670.000                 X   660.000
                                                ã720.000
                                            X  1220.000
                              X   630.000          .000
                                                                                                                    AM 4         .000
                                                                                                                    CE 703       .000
                                                                                                                    GS 7         .000
                                                                                                                    GS 14        .000
                                                           X  1320.000                                              S 7          .000
                                                                                                                    S 11         .000
                                                                                                                    S 12         .000
```

REOCP PROGRESS REPORT

```
    09/26/75                                                CORE ANALYSIS REPORT
                            UNIT VALUE  WET    .       DIS SOLIDS  AQUIFER U METHOD  3  FROM:  3/01/75  TO:  3/31/75





       X  1090.000

       X  1450.000



                                                                X   620.000
                                                    X      .000                                                         X      .000
                                                    X  2630.000
                                                       2570.000
                                                                                        X  1940.000






                                                      X   960.000


                                                                                      .000
                                                                               X      .000                               X      .000
                                                                                      .000



                                                              X   850.000
                                                                                                   X      .000

       X  1580.000                                                                                        .000
                                                                                                             XX      .000

                                                                              X  1310.000

                                                  X      .000                                                         X   780.000




                                                                                          X      .000
                                                               X  1120.000 X  1120.000                         X      .000
                                                      .000
                                               X      .000
                                  X   810.000      820.000
                                                                                                                     AM 4         .000
                                                                                                                     CE 703       .000
                                                                                                                     GS 7         .000
                                                                                                                     GS 14        .000
                                                             X   730.000                                             S 7          .000
                                                                                                                     S 11         .000
                                                                                                                     S 12         .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        UNIT VALUE  WET            DIS SOLIDS  AQUIFER L METHOD  3  FROM:  3/01/75  TO:  3/31/75





   X      .000

   X  1300.000



                                                            X  1920.000
                                                X      .000                                                          X      .000
                                                X      .000
                                                   3180.000
                                                                                    X  1740.000






                                                  X      .000


                                                                                   .000
                                                                            X      .000                               X      .000
                                                                                   .000



                                                          X      .000
                                                                                                 X      .000

   X      .000                                                                                          .000
                                                                                                           XX      .000

                                                                           X      .000

                                              X      .000                                                           X      .000




                                                                                       X      .000
                                                            X      .000 X   750.000                 X   660.000
                                                840.000
                                            X  1250.000
                              X   710.000          .000
                                                                                                                    AM 4         .000
                                                                                                                    CE 703       .000
                                                                                                                    GS 7         .000
                                                                                                                    GS 14        .000
                                                          X      .000                                               S 7          .000
                                                                                                                    S 11         .000
                                                                                                                    S 12         .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        UNIT VALUE  WET            DIS SOLIDS  AQUIFER U METHOD  3  FROM:  4/01/75  TO:  4/30/75





   X  1180.000

   X  1460.000



                                                            X   690.000
                                                X      .000                                                          X      .000
                                                X  2850.000
                                                   2780.000
                                                                                    X  1910.000






                                                  X      .000


                                                                                540.000
                                                                            X      .000                               X  1160.000
                                                                                730.000



                                                          X   800.000
                                                                                                X  1040.000

   X  1710.000                                                                                         .000
                                                                                                          XX   820.000

                                                                           X   980.000

                                               X 1150.000                                                          X  1060.000




                                                                                       X      .000
                                                            X  1030.000 X   900.000                 X   660.000
                                               1230.000
                                            X      .000
                               X  910.000       710.000
                                                                                                                   AM 4         .000
                                                                                                                   CE 703       .000
                                                                                                                   GS 7         .000
                                                                                                                   GS 14        .000
                                                          X   810.000                                              S 7          .000
                                                                                                                   S 11         .000
                                                                                                                   S 12         .000
```

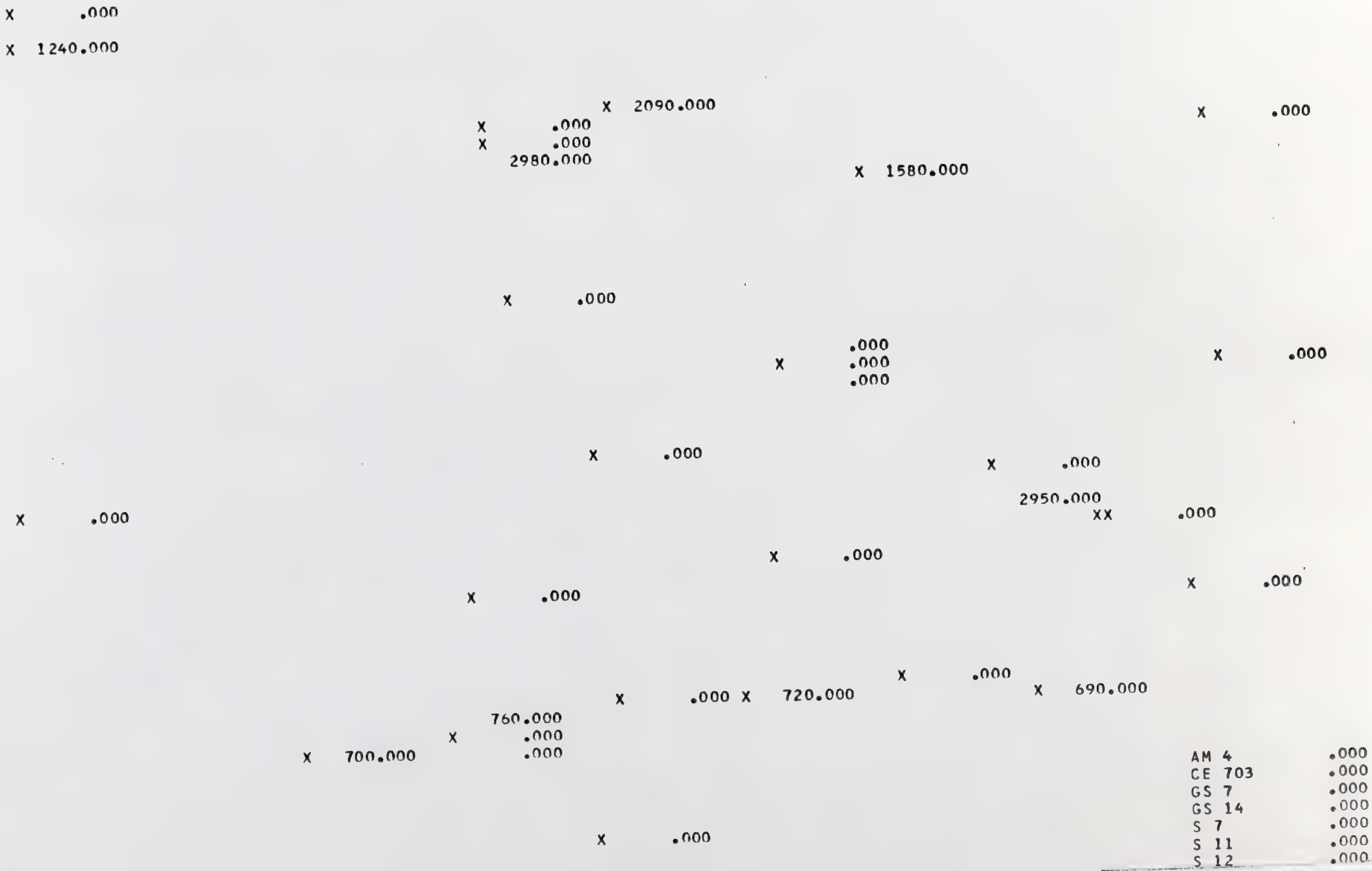
```
09/26/75                                                CORE ANALYSIS REPORT

                        UNIT VALUE  WET            DIS SOLIDS  AQUIFER L METHOD  3  FROM:  4/01/75  TO:  4/30/75





   X      .000

   X  1290.000



                                                            X  1880.000
                                                X      .000                                                          X      .000
                                                X      .000
                                                   3200.000
                                                                                    X  1680.000






                                                  X      .000


                                                                                   .000
                                                                            X      .000                               X      .000
                                                                                   .000



                                                          X      .000
                                                                                                X      .000

   X      .000                                                                                         .000
                                                                                                          XX      .000

                                                                           X      .000

                                              X      .000                                                          X      .000




                                                                                       X      .000
                                                            X      .000 X   670.000                 X   690.000
                                               1150.000
                                            X  1220.000
                              X   730.000          .000
                                                                                                                   AM 4         .000
                                                                                                                   CE 703       .000
                                                                                                                   GS 7         .000
                                                                                                                   GS 14        .000
                                                          X      .000                                              S  7         .000
                                                                                                                   S  11        .000
                                                                                                                   S  12        .000
```

```
09/26/75                                               CORE ANALYSIS REPORT

                       UNIT VALUE  WET            DIS SOLIDS  AQUIFER U METHOD  3  FROM:  5/01/75  TO:  5/31/75





   X   980.000

   X  1370.000



                                                           X   730.000
                                               X      .000                                                         X      .000
                                               X      .000
                                                  2760.000
                                                                                   X  1960.000






                                                 X      .000


                                                                               550.000
                                                                           X      .000                              X   950.000
                                                                                  .000



                                                         X   970.000
                                                                                              X  1010.000

   X  1680.000                                                                                         .000
                                                                                                        XX  1045.000

                                                                          X  1310.000

                                              X   990.000                                                        X   830.000




                                                                                      X      .000
                                                           X  1420.000 X  1050.000                X   830.000
                                                670.000
                                            X      .000
                              X   850.000          .000
                                                                                                                AM 4         .000
                                                                                                                CE 703       .000
                                                                                                                GS 7         .000
                                                                                                                GS 14        .000
                                                         X   970.000                                            S 7          .000
                                                                                                                S 11         .000
                                                                                                                S 12         .000
```

09/26/75

CORE ANALYSIS REPORT

UNIT VALUE WET   DIS SOLIDS AQUIFER L METHOD 3 FROM: 5/01/75 TO: 5/31/75



AM 4	.000
CE 703	.000
GS 7	.000
GS 14	.000
S 7	.000
S 11	.000
S 12	.000

```
    09/26/75                                                CORE ANALYSIS REPORT

                            UNIT VALUE  WET            DIS SOLIDS  AQUIFER U METHOD  3  FROM:  6/01/75  TO:  6/30/75






       X   880.000

       X  1360.000


                                                                X   680.000
                                                     X     .000                                                           X     .000
                                                     X     .000
                                                       2590.000
                                                                                         X  1920.000






                                                       X     .000


                                                                                    560.000
                                                                                 X      .000                              X   890.000
                                                                                        .000



                                                               X  910.000
                                                                                                     X  1060.000

                                                                                                            .000
        X  1600.000                                                                                            XX   870.000

                                                                                X  1150.000

                                                   X   820.000                                                         X   790.000




                                                                                            X      .000
                                                                 X  1100.000 X   950.000                X   600.000
                                                     960.000
                                                 X      .000
                                   X   720.000          .000
                                                                                                                        AM 4         .000
                                                                                                                        CE 703       .000
                                                                                                                        GS 7         .000
                                                                                                                        GS 14        .000
                                                               X   870.000                                              S 7          .000
                                                                                                                        S 11         .000
                                                                                                                        S 12         .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        UNIT VALUE  WET            DIS SOLIDS  AQUIFER L METHOD  3  FROM:  6/01/75  TO:  6/30/75





   X      .000

   X  1220.000


                                                             X  2400.000                                               X      .000
                                                 X      .000
                                                 X      .000
                                                    3640.000
                                                                                      X 1520.000






                                                   X      .000


                                                                                     .000
                                                                              X      .000                               X      .000
                                                                                     .000



                                                            X      .000
                                                                                                  X      .000

                                                                                                         .000
    X      .000                                                                                            XX      .000

                                                                             X      .000

                                                X      .000                                                           X      .000




                                                                                         X      .000
                                                              X      .000 X   680.000                  X  670.000
                                                 730.000
                                              X     .000
                                X  630.000          .000
                                                                                                                     AM 4          .000
                                                                                                                     CE 703        .000
                                                                                                                     GS 7          .000
                                                                                                                     GS 14         .000
                                                            X      .000                                              S 7           .000
                                                                                                                     S 11          .000
                                                                                                                     S 12          .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        UNIT VALUE  WET            DIS SOLIDS  AQUIFER U METHOD  3  FROM:  7/01/75  TO:  7/31/75





   X  1190.000

   X  1380.000



                                                            X   660.000
                                                X      .000                                                          X   900.000
                                                X      .000
                                                   2790.000
                                                                                    X  2030.000






                                                   X   840.000


                                                                                900.000
                                                                            X      .000                               X      .000
                                                                                   .000



                                                          X   910.000
                                                                                                X  1190.000

    X  1820.000                                                                                        .000
                                                                                                          XX  1250.000

                                                                           X  1250.000

                                               X     .000                                                          X   805.000




                                                                                       X      .000
                                                             X  1160.000 X   960.000                X   650.000
                                                 950.000
                                             X      .000
                               X   880.000          .000
                                                                                                                   AM 4         .000
                                                                                                                   CE 703       .000
                                                                                                                   GS 7         .000
                                                                                                                   GS 14        .000
                                                           X   880.000                                             S 7          .000
                                                                                                                   S 11         .000
                                                                                                                   S 12         .000
```

```
  09/26/75                                               CORE ANALYSIS REPORT
                         UNIT VALUE  WET           DIS SOLIDS  AQUIFER L METHOD  3  FROM:  7/01/75  TO:  7/31/75





     X   820.000

     X      .000


                                                             X  2780.000                                          X  2950.000
                                                  X     .000
                                                  X     .000
                                                    3170.000
                                                                                     X  1570.000






                                                    X  1690.000


                                                                                1320.000                               X  2850.000
                                                                              X     .000
                                                                                    .000



                                                            X  1070.000                      
                                                                                                  X  2330.000

                                                                                                        .000
      X  3360.000                                                                                          XX  2470.000

                                                                             X  1240.000

                                                                                                                     X  2140.000
                                                 X  1400.000




                                                                                         X  1460.000
                                                               X  1620.000 X     .000                X   725.000
                                                  885.000
                                               X     .000
                                 X  1000.000         .000                                                            AM 4        .000
                                                                                                                     CE 703      .000
                                                                                                                     GS 7        .000
                                                                                                                     GS 14       .000
                                                             X  1320.000                                             S 7         .000
                                                                                                                     S 11        .000
                                                                                                                     S 12        .000
```

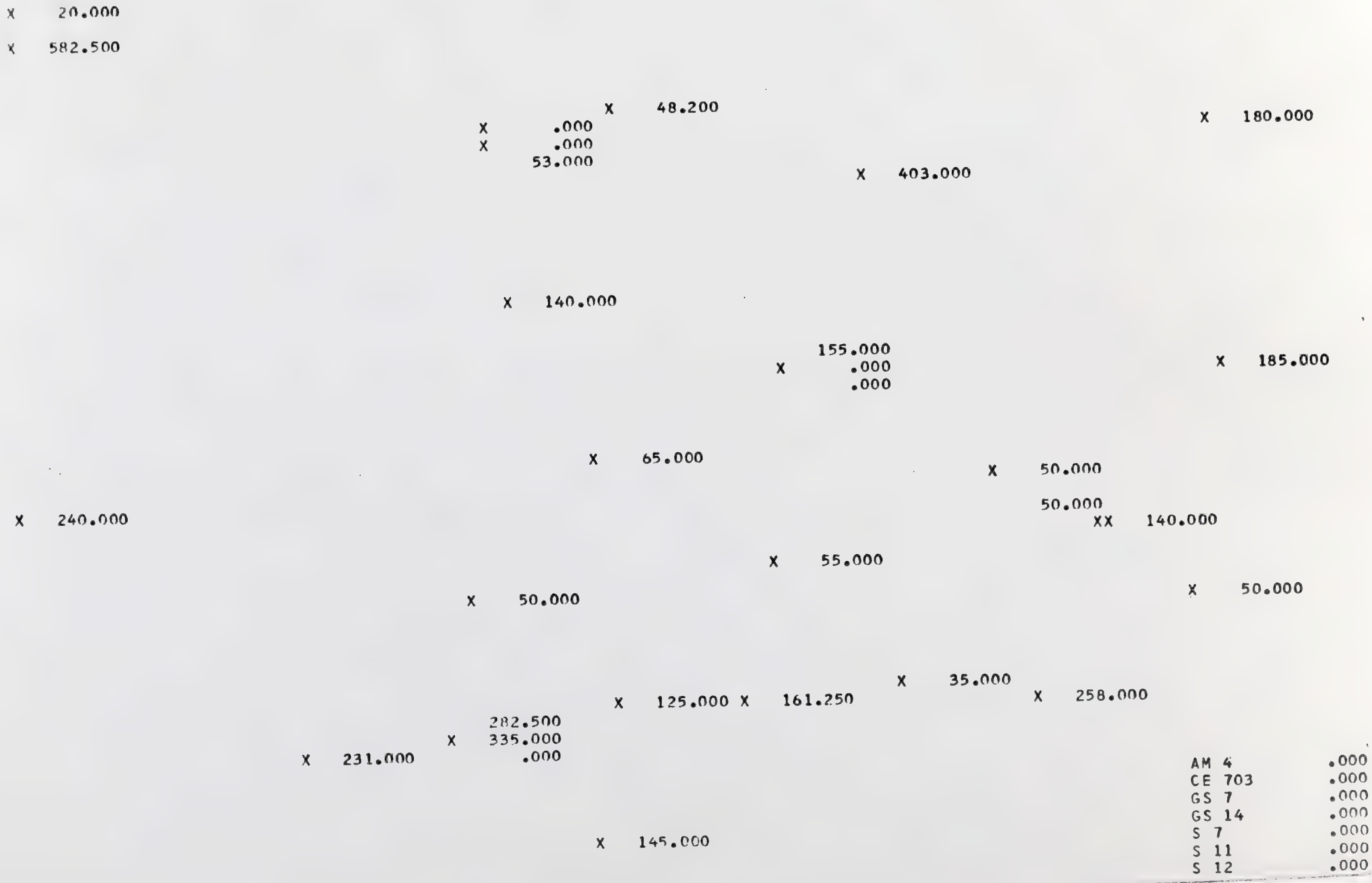
RBDSP PROGRESS REPORT

```
09/26/75                                              CORE ANALYSIS REPORT

                       AVERAGE     WET   .       SULFATE     AQUIFER U METHOD  3  FROM:          TO:





   X   419.000

   X   622.000



                                                          X    45.600
                                               X     .000                                                        X  320.000
                                               X  102.500
                                                   50.400
                                                                                 X   814.000






                                                 X  285.000


                                                                             248.750
                                                                          X     .000                              X  348.333
                                                                             270.000



                                                        X   327.000
                                                                                             X  395.000

    X  644.000                                                                                     .000
                                                                                                      XX   472.500

                                                                         X  416.000

                                             X  301.667                                                       X   303.000




                                                                                    X      .000
                                                          X   348.000 X  333.000                 X  275.000
                                               298.750
                                           X      .000
                              X  310.000       385.000
                                                                                                               AM 4        .000
                                                                                                               CE 703      .000
                                                                                                               GS 7        .000
                                                                                                               GS 14       .000
                                                         X  284.167                                            S 7         .000
                                                                                                               S 11        .000
                                                                                                               S 12        .000
```

09/26/75

CORE ANALYSIS REPORT

AVERAGE WET SULFATE AQUIFER L METHOD 3 FROM: TO:


X 20.000
X 582.500
X 48.200
X .000
X .000
53.000
X 180.000
X 403.000
X 140.000
155.000
X .000
.000
X 185.000
X 65.000
X 50.000
50.000
XX 140.000
X 240.000
X 55.000
X 50.000
X 50.000
X 35.000
X 125.000 X 161.250
X 258.000
282.500
X 335.000
.000
X 231.000
X 145.000
AM 4 .000
CE 703 .000
GS 7 .000
GS 14 .000
S 7 .000
S 11 .000
S 12 .000

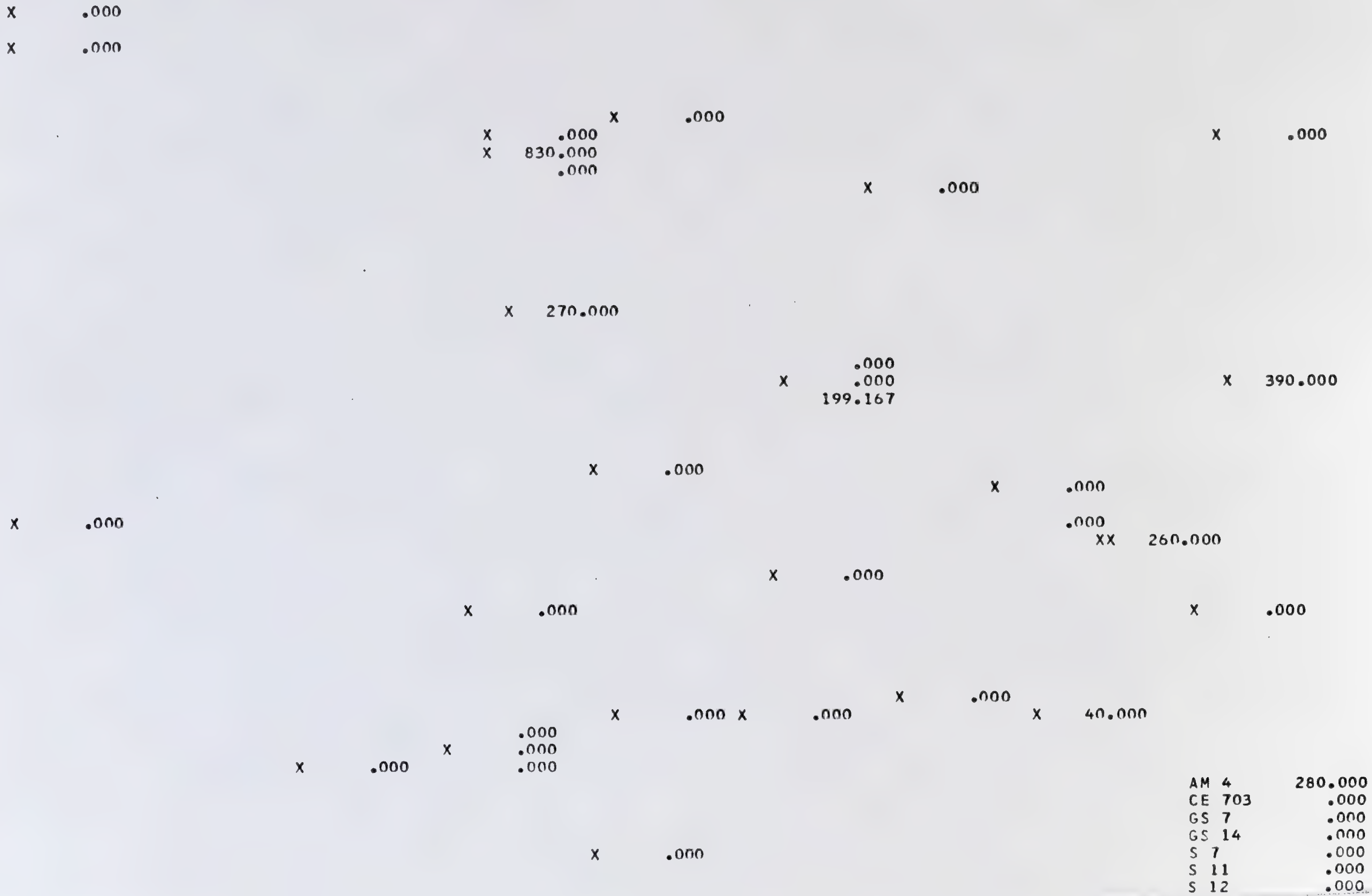
RBDSP [illegible]

```
09/26/75                                                CORE ANALYSIS REPORT
                        AVERAGE     WET            PH          AQUIFER U METHOD  3  FROM:           TO:





   X     6.679

   X     6.699



                                                            X     7.519
                                                X      .000                                                          X     7.199
                                                X     7.200
                                                      7.599
                                                                                    X     6.599






                                                  X     7.332


                                                                                  6.750
                                                                            X      .000                                X     7.033
                                                                                  6.399



                                                          X     6.439
                                                                                                X     6.750

   X     6.779                                                                                         .000
                                                                                                          XX     6.474

                                                                           X     6.679

                                              X     6.933                                                          X     6.819




                                                                                       X      .000
                                                            X     6.539 X     6.539                 X     6.974
                                                  6.649
                                            X      .000
                              X     6.579         6.000
                                                                                                                   AM 4           .000
                                                                                                                   CE 703         .000
                                                                                                                   GS 7           .000
                                                                                                                   GS 14          .000
                                                          X     6.633                                              S 7            .000
                                                                                                                   S 11           .000
                                                                                                                   S 12           .000
```

```
09/26/75                                                CORE ANALYSIS REPORT
                        AVERAGE     WET            PH          AQUIFER L METHOD  3  FROM:               TO:


   X     7.199

   X     6.649

                                                            X      8.239
                                                 X      .000                                                               X     7.599
                                                 X      .000
                                                      8.319
                                                                                     X     7.079



                                                   X     7.399

                                                                                   7.299
                                                                             X      .000                                     X     7.599
                                                                                    .000


                                                           X     7.399
                                                                                                  X     7.399

                                                                                                       8.000
    X     7.399
                                                                                                           XX     7.500

                                                                            X     7.299
                                               X     7.399                                                       X     7.500


                                                                                         X   11.000
                                                             X     7.199 X     6.600                    X     6.919
                                                   7.049
                                             X     6.599
                               X     6.899          .000
                                                                                                                    AM 4          .000
                                                                                                                    CE 703        .000
                                                                                                                    GS 7          .000
                                                                                                                    GS 14         .000
                                                           X     7.199                                              S 7           .000
                                                                                                                    S 11          .000
                                                                                                                    S 12          .000
```

RECSP PROGRESS REPORT

```
09/26/75                                   CORE ANALYSIS REPORT

                AVERAGE    WET          SODIUM      AQUIFER U METHOD  2  FROM:          TO:
```



X .000
X .000
X .000
X .000
X 830.000
.000
X .000
X .000
X 270.000
.000
X .000
199.167
X 390.000
X .000
X .000
X .000
.000
XX 260.000
X .000
X .000
X .000
X .000
X .000 X .000
X 40.000
.000
X .000
X .000 .000
X .000

```
AM 4      280.000
CE 703       .000
GS 7         .000
GS 14        .000
S 7          .000
S 11         .000
S 12         .000
```

```
    09/26/75                                                CORE ANALYSIS REPORT

                             AVERAGE    WET             SODIUM     AQUIFER L METHOD  2  FROM:           TO:






        X      .000

        X      .000



                                                                 X      .000
                                                     X  3345.000                                                          X      .000
                                                     X      .000
                                                        1350.000
                                                                                          X      .000






                                                        X      .000


                                                                                         .000
                                                                                  X   768.333                               X  1090.000
                                                                                         .000



                                                                X      .000
                                                                                                      X      .000

         X      .000                                                                                        1017.000
                                                                                                                XX   288.750

                                                                                 X      .000

                                                    X      .000                                                          X      .000




                                                                                              X      .000
                                                                   X      .000 X      .000                     X  1110.000
                                                         .000
                                                   X  327.727
                                     X      .000      247.500
                                                                                                                         AM 4     1180.000
                                                                                                                         CE 703       .000
                                                                                                                         GS 7         .000
                                                                                                                         GS 14        .000
                                                                 X      .000                                             S 7          .000
                                                                                                                         S 11         .000
                                                                                                                         S 12         .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        HIGHEST     WET            SODIUM      AQUIFER U METHOD  1  FROM:           TO:





   X   270.000

   X   210.000



                                                            X   260.000
                                                X   720.000                                                          X   260.000
                                                X      .000
                                                       .000
                                                                                    X   185.000






                                                  X   310.000


                                                                                   .000
                                                                            X   150.000                               X   463.000
                                                                                   .000



                                                          X   140.000
                                                                                                X   295.000

   X   260.000                                                                                      240.000
                                                                                                          XX   780.000

                                                                           X   180.000

                                              X   230.000                                                          X   940.000




                                                                                       X   200.000
                                                            X   266.000 X   160.000                 X   190.000
                                                   .000
                                            X   190.000
                              X   180.000       290.000
                                                                                                                  AM 4      277.000
                                                                                                                  CE 703    640.000
                                                                                                                  GS 7      260.000
                                                                                                                  GS 14     230.000
                                                          X   150.000                                             S 7          .000
                                                                                                                  S 11         .000
                                                                                                                  S 12         .000
```

```
09/26/75                                               CORE ANALYSIS REPORT

                        HIGHEST    WET            SODIUM      AQUIFER C METHOD  1  FROM:          TO:





   X 12000.000

   X      .000



                                                           X  1430.000
                                                X     .000                                                          X 1050.000
                                                X     .000
                                                   890.000
                                                                                   X   930.000






                                                  X  955.000


                                                                                  .000
                                                                           X   350.000                               X  277.000
                                                                               380.000



                                                         X   165.000
                                                                                               X   900.000

   X   660.000                                                                                    1250.000
                                                                                                         XX  1200.000

                                                                          X  1120.000

                                              X  945.000                                                         X  880.000




                                                                                      X   910.000
                                                           X   566.000 X   580.000                 X  1990.000
                                                  .000
                                            X     .000
                              X  970.000       350.000
                                                                                                                 AM 4     1110.000
                                                                                                                 CE 703    680.000
                                                                                                                 GS 7      220.000
                                                                                                                 GS 14     680.000
                                                         X  1050.000                                             S 7          .000
                                                                                                                 S 11         .000
                                                                                                                 S 12         .000
```

```
     09/26/75                                                 CORE ANALYSIS REPORT
                              AVERAGE     WET   .        SODIUM      AQUIFER U METHOD  1  FROM:           TO:






         X   265.000

         X   207.500



                                                                  X   235.000
                                                      X   450.000                                                           X  250.000
                                                      X      .000
                                                             .000
                                                                                          X   185.000






                                                         X  277.500


                                                                                         .000
                                                                                   X  110.000                                X  270.000
                                                                                         .000



                                                                 X  130.000
                                                                                                       X  295.000

          X  250.000                                                                                      240.000
                                                                                                                XX   426.667

                                                                                  X  177.500

                                                     X  208.500                                                           X  575.000




                                                                                              X   143.333
                                                                   X   207.500 X   150.000                 X   190.000
                                                          .000
                                                   X   187.500
                                     X   180.000       225.000
                                                                                                                          AM 4     277.000
                                                                                                                          CE 703   565.000
                                                                                                                          GS 7     200.000
                                                                                                                          GS 14    230.000
                                                                 X   138.333                                              S 7         .000
                                                                                                                          S 11        .000
                                                                                                                          S 12        .000
```

```
09/26/75                                                CORE ANALYSIS REPORT
                        AVERAGE     WET            SODIUM      AQUIFER C METHOD  1  FROM:           TO:





   X  6733.333

   X      .000



                                                            X  1430.000
                                                X      .000                                                          X   955.000
                                                X      .000
                                                    474.200
                                                                                    X   585.000






                                                  X   720.000


                                                                                   .000
                                                                             X  350.000                                X   277.000
                                                                                300.000



                                                           X   165.000
                                                                                                 X   800.000

    X   575.000                                                                                     1235.000
                                                                                                           XX   910.000

                                                                            X   848.333

                                               X   945.000                                                          X   880.000




                                                                                        X   580.000
                                                             X   416.000 X   395.000                 X  1882.500
                                                    .000
                                             X      .000
                               X   890.000       350.000
                                                                                                                    AM 4      926.500
                                                                                                                    CE 703    680.000
                                                                                                                    GS 7      220.000
                                                                                                                    GS 14     580.000
                                                           X  1050.000                                              S 7          .000
                                                                                                                    S 11         .000
                                                                                                                    S 12         .000
```

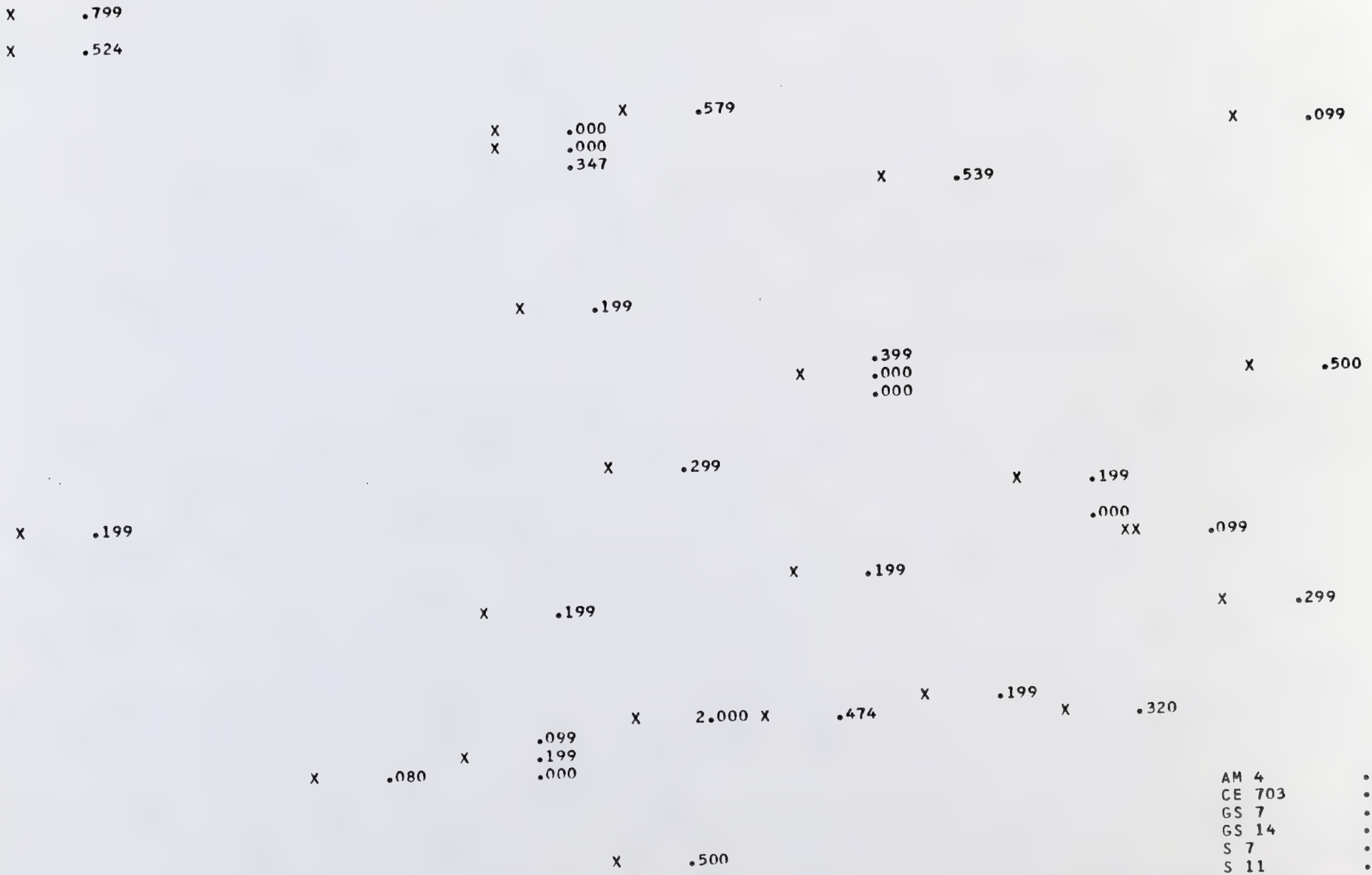
```
09/26/75                                               CORE ANALYSIS REPORT

                        AVERAGE     WET           CALCIUM      AQUIFER U METHOD  3  FROM:          TO:




   X    31.200

   X    76.200


                                                            X   18.000
                                                X      .000                                                           X    30.000
                                                X    31.500
                                                      7.839
                                                                                    X   185.000




                                                  X    20.667


                                                                                10.150
                                                                            X     .000                               X    49.000
                                                                                38.000


                                                          X    61.800
                                                                                                X   59.250
   X   168.000                                                                                        .000
                                                                                                         XX    42.750

                                                                           X   151.000
                                              X    51.333                                                        X    31.000



                                                                                       X      .000
                                                            X   161.000 X   103.600                 X    11.000
                                                 76.250
                                            X      .000
                              X    41.000        55.000
                                                                                                                  AM 4         .000
                                                                                                                  CE 703       .000
                                                                                                                  GS 7         .000
                                                                                                                  GS 14        .000
                                                          X    83.667                                             S 7          .000
                                                                                                                  S 11         .000
                                                                                                                  S 12         .000
```

```
                                                           CORE ANALYSIS REPORT
    09/26/75
                            AVERAGE    WET            CALCIUM     AQUIFER L METHOD  3  FROM:          TO:



       X     6.599

       X    66.000

                                                                X     6.219                                                 X     17.000
                                                    X      .000
                                                    X      .000
                                                          3.199
                                                                                        X    63.600



                                                      X    11.000

                                                                                     15.000
                                                                                X      .000                                  X     4.099
                                                                                       .000


                                                               X     9.000                             X     9.000

                                                                                                           17.000
        X    11.000                                                                                            XX    13.000

                                                                                X     6.599
                                                                                                                       X     6.599
                                                   X     5.699


                                                                                            X   115.000
                                                                 X     15.000 X     27.250                    X     15.600
                                                      10.616
                                                 X    29.500
                                   X    19.200          .000                                                                 AM 4         .000
                                                                                                                             CE 703       .000
                                                                                                                             GS 7         .000
                                                                                                                             GS 14        .000
                                                                                                                             S 7          .000
                                                               X    28.000                                                   S 11         .000
                                                                                                                             S 12         .000
    09/26/75                                                CORE ANALYSIS REPORT

                             AVERAGE    WET            NITRATE     AQUIFER U METHOD  3  FROM:           TO:





        X      .399

        X      .559



                                                                 X     .279
                                                     X      .000                                                         X      .199
                                                     X      .150
                                                            .559
                                                                                         X    1.319






                                                       X      .116


                                                                                       .375
                                                                                 X     .000                               X      .399
                                                                                       .149



                                                               X      .209
                                                                                                     X    2.025

                                                                                                           .000
         X      .219                                                                                         XX      .349

                                                                                X      .459

                                                   X      .266                                                         X      .399




                                                                                            X      .000
                                                                 X     1.379 X      .259                 X     .699
                                                        .524
                                                  X     .000
                                    X     .160        1.600
                                                                                                                       AM 4         .000
                                                                                                                       CE 703       .000
                                                                                                                       GS 7         .000
                                                                                                                       GS 14        .000
                                                               X      .216                                             S 7          .000
                                                                                                                       S 11         .000
                                                                                                                       S 12         .000
```

09/26/75

CORE ANALYSIS REPORT

AVERAGE WET NITRATE AQUIFER L METHOD 3 FROM: TO:



AM 4	.000
CE 703	.000
GS 7	.000
GS 14	.000
S 7	.000
S 11	.000
S 12	.000

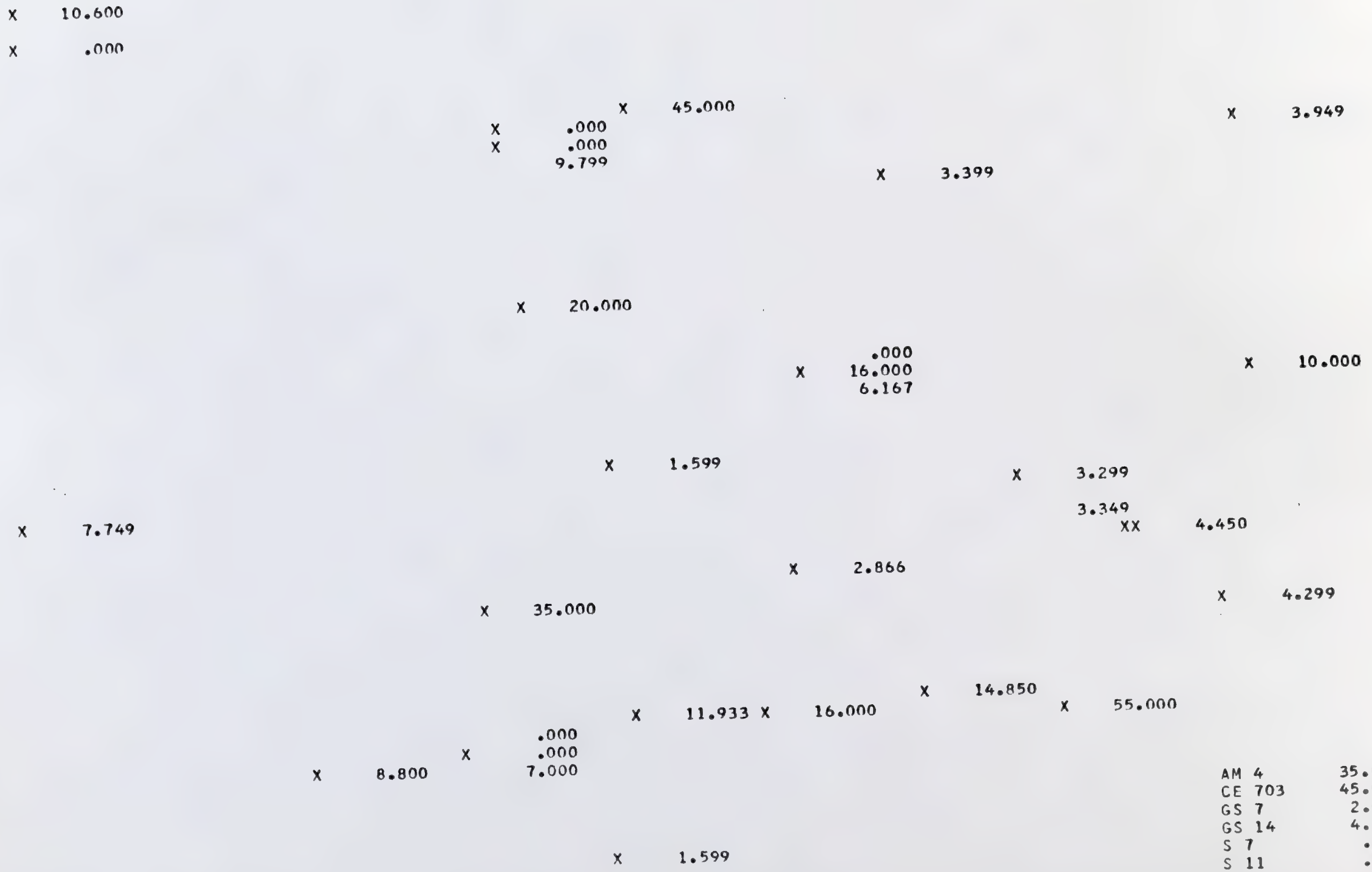
```
    09/26/75                                                CORE ANALYSIS REPORT
                            AVERAGE     WET            IRON        AQUIFER U METHOD  3  FROM:          TO:



        X     3.479

        X     5.439



                                                                X     2.019
                                                    X     .000                                                                X     2.799
                                                    X    2.504
                                                         2.380
                                                                                        X     4.749






                                                      X     2.039



                                                                                     6.099
                                                                                X     .000                                     X     6.466
                                                                                     1.399



                                                               X     4.183
                                                                                                    X     4.499

                                                                                                           .000
        X     9.160
                                                                                                              XX     8.374

                                                                                X     5.699

                                                   X     2.533                                                            X     3.079




                                                                                            X     .000
                                                                 X     3.559 X     4.901                    X     10.749
                                                      12.000
                                                 X      .000
                                   X     5.239          .359
                                                                                                                           AM 4          .000
                                                                                                                           CE 703        .000
                                                                                                                           GS 7          .000
                                                                                                                           GS 14         .000
                                                               X     5.888                                                 S 7           .000
                                                                                                                           S 11          .000
                                                                                                                           S 12          .000
    09/26/75                                                CORE ANALYSIS REPORT

                            AVERAGE     WET             IRON        AQUIFER L METHOD  3  FROM:           TO:






        X    2.299

        X    4.504


                                                                 X     2.979                                               X     4.500
                                                     X      .000
                                                     X      .000
                                                           1.063
                                                                                          X    5.221






                                                        X    3.000


                                                                                         .899
                                                                                  X      .000                                X    3.000
                                                                                         .000



                                                                X     1.699
                                                                                                       X    2.699

                                                                                                            1.899
         X   15.500                                                                                             XX     6.099

                                                                                  X    1.299

                                                    X     2.399                                                           X     2.500




                                                                                              X     1.599
                                                                   X    2.500  X     1.764                 X     4.579
                                                        3.449
                                                  X     5.950
                                    X     2.031          .000                                                             AM 4         .000
                                                                                                                          CE 703       .000
                                                                                                                          GS 7         .000
                                                                                                                          GS 14        .000
                                                                                                                          S 7          .000
                                                                 X      .799                                              S 11         .000
                                                                                                                          S 12         .000
```

```
     09/26/75                                                CORE ANALYSIS REPORT
                             AVERAGE     WET   .        FLUORIDE    AQUIFER U METHOD  1  FROM:           TO:





         X    8.000

         X    3.349



                                                                 X    17.500
                                                     X     6.450                                                          X    4.449
                                                     X      .000
                                                            .000
                                                                                         X     1.500






                                                       X      .499


                                                                                        .000
                                                                                 X     2.699                               X   12.050
                                                                                        .000



                                                               X      .849
                                                                                                     X     2.299

         X     7.699                                                                                       1.899
                                                                                                              XX     4.100

                                                                                X     3.000

                                                    X     .350                                                          X    4.449




                                                                                            X      .866
                                                                 X      .099 X      .199                 X    1.000
                                                        .000
                                                  X    1.229
                                    X     1.000         .899
                                                                                                                       AM 4        .099
                                                                                                                       CE 703    35.000
                                                                                                                       GS 7       4.050
                                                                                                                       GS 14      3.000
                                                                X     .566                                             S 7         .000
                                                                                                                       S 11        .000
                                                                                                                       S 12        .000
```

09/26/75

CORE ANALYSIS REPORT

AVERAGE WET FLUORIDE AQUIFER C METHOD 1 FROM: TO:


X 10.600
X .000
X 45.000
X 3.949
X .000
X .000
9.799
X 3.399
X 20.000
.000
X 16.000
6.167
X 10.000
X 1.599
X 3.299
3.349
XX 4.450
X 7.749
X 2.866
X 4.299
X 35.000
X 14.850
X 11.933 X 16.000
X 55.000
.000
X .000
X 8.800
7.000
X 1.599

AM 4	35.000
CE 703	45.000
GS 7	2.000
GS 14	4.349
S 7	.000
S 11	.000
S 12	.000

```
09/26/75                                               CORE ANALYSIS REPORT
                        HIGHEST     WET           FLUORIDE    AQUIFER U METHOD  1  FROM:           TO:






   X    12.000

   X     5.099



                                                            X   47.000
                                                X    10.000                                                         X     4.599
                                                X      .000
                                                       .000
                                                                                   X     1.500






                                                  X      .799


                                                                                  .000
                                                                            X    4.599                               X    24.000
                                                                                  .000



                                                          X     1.599
                                                                                               X     2.299

   X     8.799                                                                                         1.899
                                                                                                         XX     5.000

                                                                           X    4.000

                                              X      .500                                                         X     4.699




                                                                                      X     1.099
                                                            X      .099 X     .199                 X     1.000
                                                   .000
                                            X     2.399
                              X     1.000         1.599
                                                                                                                  AM 4         .099
                                                                                                                  CE 703     40.000
                                                                                                                  GS 7        8.000
                                                                                                                  GS 14       3.000
                                                          X     1.199                                             S 7          .000
                                                                                                                  S 11         .000
                                                                                                                  S 12         .000
   09/26/75                                                CORE ANALYSIS REPORT
                           HIGHEST     WET            FLUORIDE    AQUIFER C METHOD  1  FROM:           TO:



       X   16.000

       X     .000


                                                                X   45.000                                               X     4.199
                                                    X      .000
                                                    X      .000
                                                         25.000
                                                                                        X     4.699







                                                      X    24.000

                                                                                       .000
                                                                                 X   16.000                                X   10.000
                                                                                      9.000



                                                               X    1.599                            X    4.299

                                                                                                          3.399
        X   10.299                                                                                           XX     4.899

                                                                                X     3.699
                                                                                                                        X     4.299
                                                   X    35.000



                                                                                            X    25.000
                                                                 X    16.000 X    30.000                 X    60.000
                                                        .000
                                                 X      .000
                                   X     9.500         7.000                                                            AM 4       40.000
                                                                                                                        CE 703     45.000
                                                                                                                        GS 7        2.000
                                                                                                                        GS 14       4.399
                                                                                                                        S 7          .000
                                                               X    1.599                                               S 11         .000
                                                                                                                        S 12         .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        AVERAGE     WET            FLUORIDE    AQUIFER U METHOD  3 FROM:            TO:






    X     1.579

    X      .199



                                                            X     3.959
                                                X      .000                                                          X     2.399
                                                X    43.500
                                                     26.400
                                                                                    X      .679






                                                  X    20.826


                                                                                   .774
                                                                            X      .000                               X      .932
                                                                                   .899



                                                          X      .211
                                                                                                X      .099

    X      .279                                                                                        .000
                                                                                                          XX      .199

                                                                           X      .379

                                               X      .532                                                         X     2.539




                                                                                       X      .000
                                                            X      .159 X     1.019                 X      .724
                                                    .199
                                             X      .000
                               X      .159          .299
                                                                                                                   AM 4         .000
                                                                                                                   CE 703       .000
                                                                                                                   GS 7         .000
                                                                                                                   GS 14        .000
                                                          X      .232                                              S 7          .000
                                                                                                                   S 11         .000
                                                                                                                   S 12         .000
```

```
09/26/75                                                 CORE ANALYSIS REPORT
                         AVERAGE     WET            FLUORIDE    AQUIFER L METHOD  3  FROM:            TO:


    X   14.000

    X     .274


                                                              X    19.720                                               X   85.000
                                                  X     .000
                                                  X     .000
                                                      31.600
                                                                                      X     9.280






                                                    X    14.000


                                                                                   18.000
                                                                              X      .000                                X    16.000
                                                                                     .000



                                                            X    13.000                      X    66.000


                                                                                                        72.000
    X    26.000                                                                                              XX    57.000

                                                                              X    19.000

                                                X    11.000                                                            X    32.000




                                                                                          X    26.000
                                                               X    30.000 X     2.724                  X     2.099
                                                    1.532
                                              X     5.000
                                X     1.259          .000                                                             AM 4          .000
                                                                                                                      CE 703        .000
                                                                                                                      GS 7          .000
                                                                                                                      GS 14         .000
                                                             X    17.000                                              S 7           .000
                                                                                                                      S 11          .000
                                                                                                                      S 12          .000
```

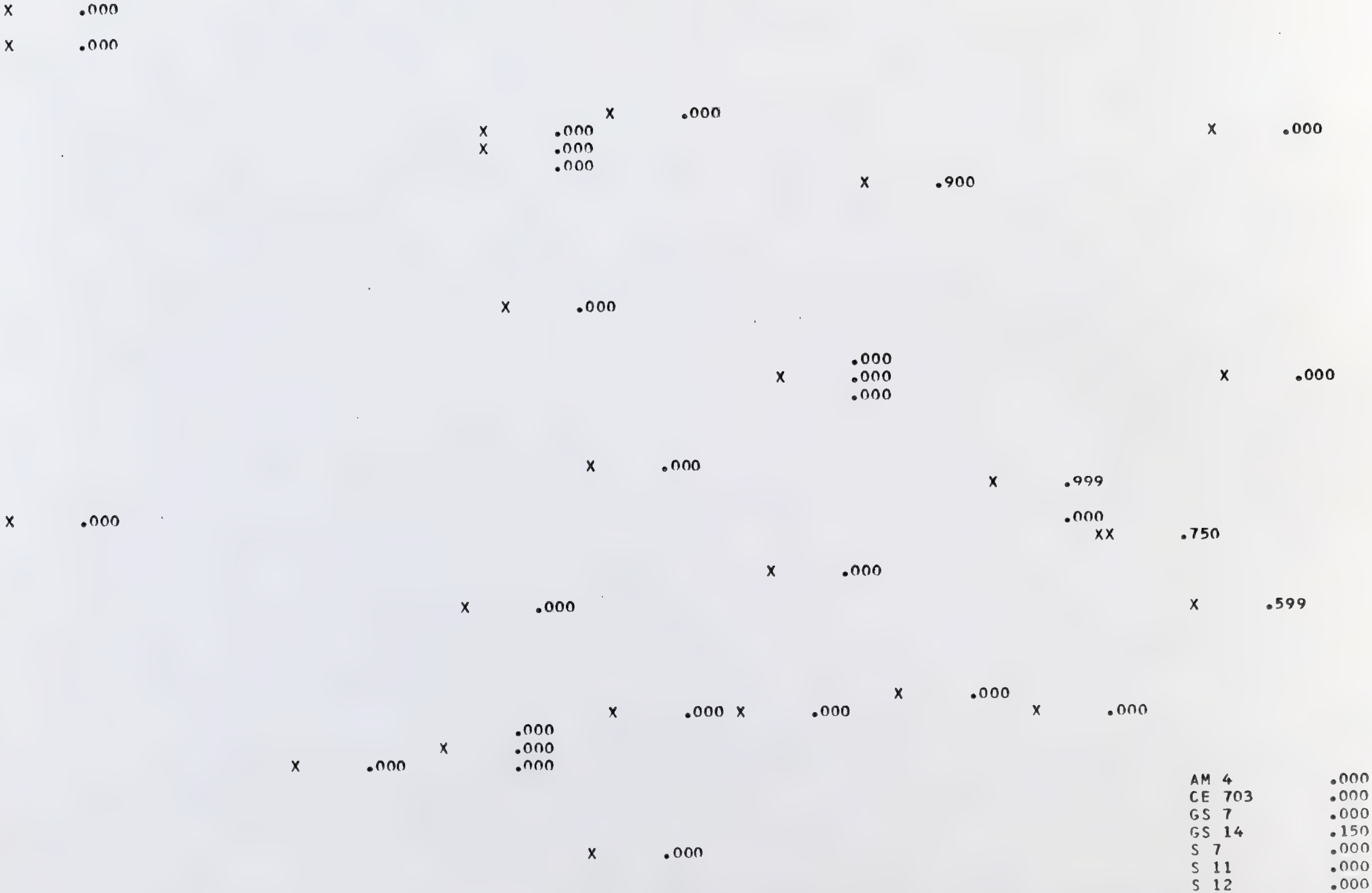
```
09/26/75                                                CORE ANALYSIS REPORT

                        HIGHEST     WET            FLUORIDE    AQUIFER U METHOD  3  FROM:           TO:






   X     2.199

   X      .399



                                                            X     5.000
                                                X      .000                                                          X     2.399
                                                X    60.000
                                                     30.000
                                                                                    X     1.000






                                                  X    60.000


                                                                                  1.000
                                                                            X      .000                               X     1.099
                                                                                   .899



                                                          X       .299
                                                                                                 X      .099

    X      .399                                                                                         .000
                                                                                                          XX       .299

                                                                            X      .399

                                               X      .799                                                          X     2.899




                                                                                        X      .000
                                                             X      .299 X     3.599                X       .799
                                                    .199
                                             X      .000
                               X      .199          .399
                                                                                                                   AM 4         .000
                                                                                                                   CE 703       .000
                                                                                                                   GS 7         .000
                                                                                                                   GS 14        .000
                                                           X      .299                                             S 7          .000
                                                                                                                   S 11         .000
                                                                                                                   S 12         .000
    09/26/75                                                CORE ANALYSIS REPORT
                            HIGHEST     WET            FLUORIDE    AQUIFER L METHOD  3  FROM:          TO:




        X    14.000

        X      .500



                                                                X    30.000
                                                    X      .000                                                         X    85.000
                                                    X      .000
                                                         40.000
                                                                                        X   24.000






                                                      X    14.000


                                                                                     18.000
                                                                                X      .000                              X    16.000
                                                                                       .000



                                                              X    13.000
                                                                                                    X   66.000

        X   26.000                                                                                      72.000
                                                                                                             XX    57.000

                                                                               X    19.000

                                                  X    11.000                                                         X    32.000




                                                                                           X   26.000
                                                                X    30.000 X     4.000                 X    5.399
                                                      4.799
                                                X     6.000
                                  X     4.699          .000
                                                                                                                      AM 4          .000
                                                                                                                      CE 703        .000
                                                                                                                      GS 7          .000
                                                                                                                      GS 14         .000
                                                              X    17.000                                             S 7           .000
                                                                                                                      S 11          .000
                                                                                                                      S 12          .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        AVERAGE     WET            BORON       AQUIFER U METHOD  1  FROM:           TO:





    X      .000

    X      .400



                                                            X      .000
                                                X      .000                                                          X      .000
                                                X      .000
                                                       .000
                                                                                    X     2.199






                                                  X      .000


                                                                                   .000
                                                                            X      .000                                X      .000
                                                                                   .000



                                                          X      .000
                                                                                                X     1.199

    X      .000                                                                                        .000
                                                                                                          XX      .100

                                                                           X      .000

                                               X      .000                                                         X     1.049




                                                                                       X      .000
                                                             X      .000 X      .000                X      .000
                                                    .000
                                             X      .000
                               X      .000          .000
                                                                                                                   AM 4         .000
                                                                                                                   CE 703       .000
                                                                                                                   GS 7         .000
                                                                                                                   GS 14       1.299
                                                           X      .000                                             S 7          .000
                                                                                                                   S 11         .000
                                                                                                                   S 12         .000
```

09/26/75

CORE ANALYSIS REPORT

AVERAGE WET BORON AQUIFER C METHOD 1 FROM: TO:


X .000
X .000
X .000
X .000
X .000
.000
X .000
X .900
X .000
.000
X .000
.000
X .000
X .000
X .000
X .999
X .000
.000
XX .750
X .000
X .000
X .599
X .000
X .000 X .000
X .000
.000
X .000
X .000 .000
X .000

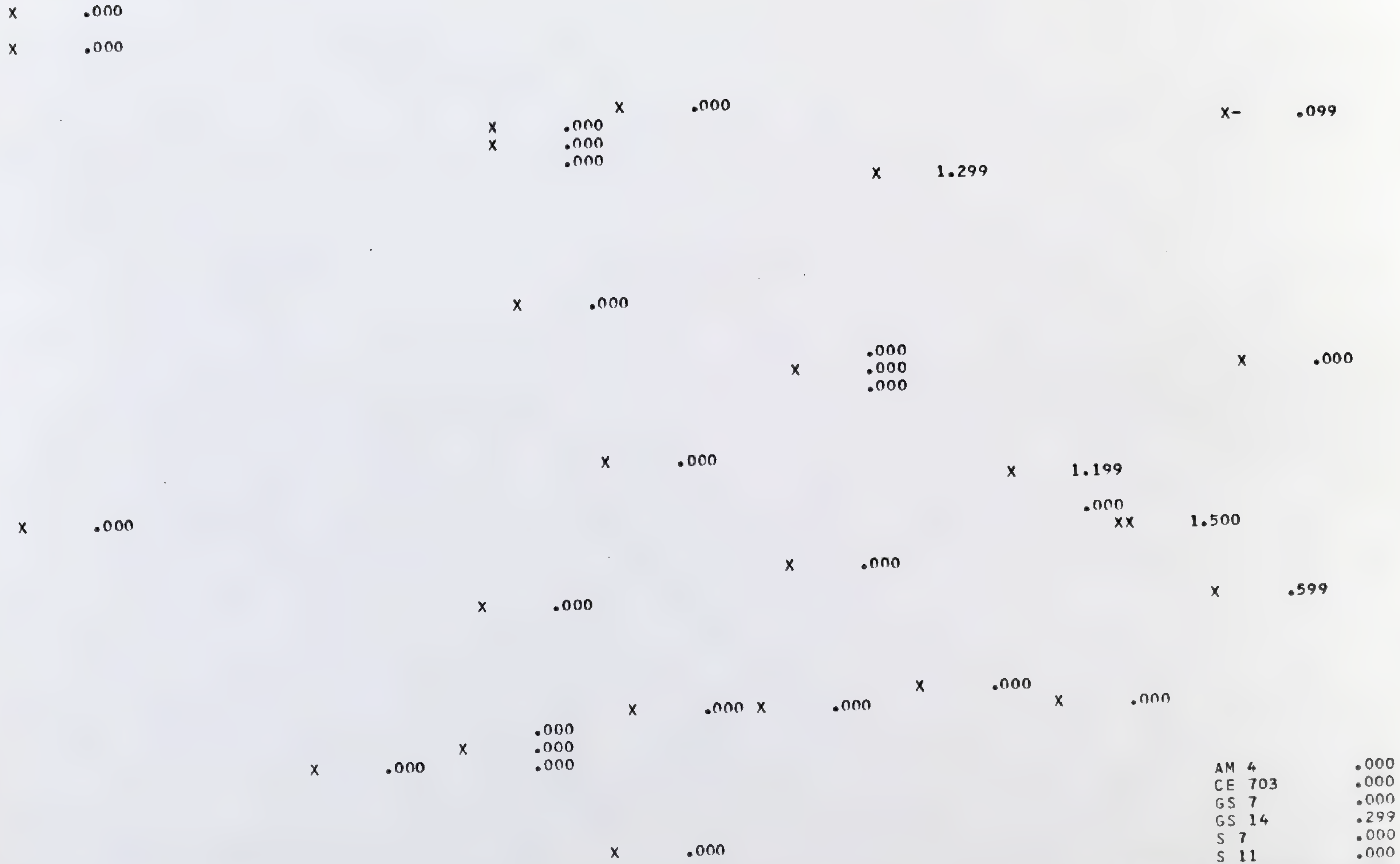
AM 4 .000
CE 703 .000
GS 7 .000
GS 14 .150
S 7 .000
S 11 .000
S 12 .000

```
09/26/75                                                CORE ANALYSIS REPORT

                        HIGHEST     WET            BORON       AQUIFER U METHOD  1  FROM:           TO:






   X      .000

   X      .500



                                                            X      .000
                                                X      .000                                                          X-     .099
                                                X      .000
                                                       .000
                                                                                    X     2.199






                                                  X      .000


                                                                                   .000
                                                                            X      .000                               X      .000
                                                                                   .000



                                                          X      .000
                                                                                                X     1.199

   X      .000                                                                                         .000
                                                                                                          XX      .299

                                                                           X      .000

                                              X      .000                                                          X     1.199




                                                                                       X      .000
                                                            X      .000 X      .000                 X      .000
                                                    .000
                                             X      .000
                               X      .000          .000
                                                                                                                   AM 4         .000
                                                                                                                   CE 703       .000
                                                                                                                   GS 7         .000
                                                                                                                   GS 14       1.299
                                                          X      .000                                              S 7          .000
                                                                                                                   S 11         .000
                                                                                                                   S 12         .000
```

09/26/75

CORE ANALYSIS REPORT

HIGHEST WET BORON AQUIFER C METHOD 1 FROM: TO:



AM 4	.000
CE 703	.000
GS 7	.000
GS 14	.299
S 7	.000
S 11	.000
S 12	.000

```
09/26/75                                                 CORE ANALYSIS REPORT

                         AVERAGE     WET            BORON       AQUIFER U METHOD  3  FROM:            TO:




   X      .409

   X      .217



                                                              X      .559
                                                 X      .000                                                                X      .099
                                                 X     2.274
                                                       3.559
                                                                                      X      .359







                                                    X     .499


                                                                                     .202
                                                                              X      .000                                    X      .846
                                                                                     .000



                                                            X      .859
                                                                                                   X     .339

    X      .087                                                                                          .000
                                                                                                            XX     1.799

                                                                             X      .120

                                                X      .139                                                               X      .559




                                                                                         X      .000
                                                              X      .759 X      .293                      X      .727
                                                     .119
                                              X      .000
                                X      .225          .100
                                                                                                                     AM 4         .000
                                                                                                                     CE 703       .000
                                                                                                                     GS 7         .000
                                                                                                                     GS 14        .000
                                                            X      .782                                              S 7          .000
                                                                                                                     S 11         .000
                                                                                                                     S 12         .000
```

```
  09/26/75                                               CORE ANA   IS REPORT
                          AVERAGE     WET           BORON       AQUIFER L METHOD  3  FROM:         TO:


      X      .699
      X     2.364

                                                             X     2.699                                            X    4.399
                                                  X     .000
                                                  X     .000
                                                       2.731
                                                                                    X      .899


                                                    X      .799

                                                                                   1.000
                                                                             X      .000                             X     4.799
                                                                                    .000

                                                            X      .899                         X     2.799
                                                                                                      5.299
        X     .399                                                                                        XX     4.399
                                                                            X      .799
                                                                                                                   X    2.500
                                                 X    1.099

                                                                                        X     1.899
                                                              X     1.500 X     .799                X      .681
                                                      .358
                                               X      .400
                                  X     .133          .000                                                         AM 4        .000
                                                                                                                   CE 703      .000
                                                                                                                   GS 7        .000
                                                                                                                   GS 14       .000
                                                                                                                   S 7         .000
                                                             X    1.199                                            S 11        .000
                                                                                                                   S 12        .000
```

```
     09/26/75                                                CORE ANALYSIS REPORT

                             HIGHEST     WET            BORON       AQUIFER U METHOD  3  FROM:           TO:





         X     .599

         X     .399



                                                                 X     1.799
                                                     X      .000                                                          X      .099
                                                     X     4.399
                                                           4.299
                                                                                         X      .799






                                                       X     1.199


                                                                                        .799
                                                                                 X      .000                               X     2.199
                                                                                  -     .099



                                                               X     2.099
                                                                                                     X     1.000

         X     .199                                                                                         .000
                                                                                                               XX     4.799

                                                                                X      .500

                                                    X     .299                                                          X      .899




                                                                                            X      .000
                                                                 X     1.699 X      .469                 X     2.399
                                                        .299
                                                  X     .000
                                    X     .409          .199
                                                                                                                        AM 4         .000
                                                                                                                        CE 703       .000
                                                                                                                        GS 7         .000
                                                                                                                        GS 14        .000
                                                               X     3.199                                              S 7          .000
                                                                                                                        S 11         .000
                                                                                                                        S 12         .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        HIGHEST     WET            BORON       AQUIFER L METHOD  3  FROM:           TO:





   X      .699

   X     9.399



                                                            X     3.899
                                                X      .000                                                          X     4.399
                                                X      .000
                                                      3.699
                                                                                    X     1.299






                                                  X      .799


                                                                                  1.000
                                                                            X      .000                              X     4.799
                                                                                   .000



                                                          X      .899
                                                                                                X     2.799

   X      .399                                                                                        5.299
                                                                                                          XX     4.399

                                                                           X      .799

                                              X     1.099                                                          X     2.500




                                                                                       X     1.899
                                                            X     1.500 X     1.899                 X     3.000
                                                  1.099
                                            X      .799
                              X      .299          .000
                                                                                                                   AM 4         .000
                                                                                                                   CE 703       .000
                                                                                                                   GS 7         .000
                                                                                                                   GS 14        .000
                                                          X     1.199                                              S 7          .000
                                                                                                                   S 11         .000
                                                                                                                   S 12         .000
```

```
     09/26/75                                                CORE ANALYSIS REPORT
                             AVERAGE     WET             HARDNESS    AQUIFER U METHOD  3  FROM:           TO:



        X   376.000

        X   770.000


                                                                  X   145.000
                                                                                                                             X   225.000
                                                      X      .000
                                                      X   157.500
                                                           46.400
                                                                                           X   927.000






                                                        X   240.000

                                                                                        91.500
                                                                                   X      .000                                X   335.000
                                                                                       325.000



                                                                 X   470.000
                                                                                                        X   462.500

                                                                                                                  .000
         X   860.000
                                                                                                                  XX   269.000

                                                                                  X   571.000

                                                     X   396.667                                                           X   229.000




                                                                                              X      .000
                                                                   X   544.000 X   467.000                      X   178.750
                                                       445.000
                                                   X      .000
                                     X   228.000       217.500
                                                                                                                           AM 4         .000
                                                                                                                           CE 703       .000
                                                                                                                           GS 7         .000
                                                                                                                           GS 14        .000
                                                                 X   415.000                                               S 7          .000
                                                                                                                           S 11         .000
                                                                                                                           S 12         .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        AVERAGE     WET             HARDNESS    AQUIFER L METHOD  3  FROM:           TO:



   X    76.000

   X   646.250


                                                             X    41.600
                                                 X      .000                                                          X    160.000
                                                 X      .000
                                                      26.400
                                                                                     X   482.000






                                                   X    80.000


                                                                                 125.000
                                                                             X      .000                               X    80.000
                                                                                    .000



                                                           X    72.000
                                                                                                 X    48.000
   X   210.000                                                                                        72.000
                                                                                                           XX   115.000

                                                                            X    60.000

                                               X    48.000                                                           X    36.000




                                                                                        X   320.000
                                                             X    92.000 X   166.250                     X   204.000
                                                210.000
                                            X   282.500
                              X   171.000           .000
                                                                                                                    AM 4         .000
                                                                                                                    CE 703       .000
                                                                                                                    GS 7         .000
                                                                                                                    GS 14        .000
                                                           X   185.000                                              S 7          .000
                                                                                                                    S 11         .000
                                                                                                                    S 12         .000
```

```
09/26/75                                                 CORE ANALYSIS REPORT
                         AVERAGE     WET            BICARBONAT  AQUIFER U METHOD  1  FROM:          TO:


   X   525.000

   X   420.000


                                                              X   593.333
                                                  X  1025.000                                                         X   450.000
                                                  X      .000
                                                         .000
                                                                                      X   715.000



                                                    X   402.500


                                                                                     .000
                                                                              X   215.000                                  X   869.000
                                                                                     .000


                                                            X   540.000
                                                                                                   X   525.000

    X   370.000                                                                                        620.000
                                                                                                             XX  1170.000

                                                                             X   612.500
                                                X   500.500                                                           X  1130.000



                                                                                          X   446.667
                                                              X   447.500 X   450.000                      X   378.000
                                                     .000
                                              X   465.000
                                X   340.000       367.500
                                                                                                                      AM 4       436.000
                                                                                                                      CE 703    1250.000
                                                                                                                      GS 7       559.000
                                                                                                                      GS 14      460.000
                                                            X   463.333                                               S 7           .000
                                                                                                                      S 11          .000
                                                                                                                      S 12          .000
```

```
09/26/75                                               CORE ANALYSIS REPORT
                        AVERAGE    WET            BICARBONAT  AQUIFER C METHOD  1  FROM:           TO:





   X 13616.667

   X      .000



                                                           X  2530.000
                                                X     .000                                                          X  1995.000
                                                X     .000
                                                   970.000
                                                                                   X  1070.000






                                                  X  1700.000


                                                                                  .000
                                                                            X  890.000                              X   863.000
                                                                               716.667



                                                          X   500.000
                                                                                               X  1920.000

   X  1415.000                                                                                    2470.000
                                                                                                         XX  1815.000

                                                                          X  1905.000

                                              X  1960.000                                                         X  1600.000




                                                                                      X   845.000
                                                           X   870.000 X  1000.000                 X  2510.000
                                                   .000
                                            X      .000
                              X  2345.000       780.000
                                                                                                                  AM 4    1810.000
                                                                                                                  CE 703  1500.000
                                                                                                                  GS 7     637.000
                                                                                                                  GS 14   1865.000
                                                          X   715.000                                             S 7         .000
                                                                                                                  S 11        .000
                                                                                                                  S 12        .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        HIGHEST     WET            BICARBONAT  AQUIFER U METHOD  1  FROM:           TO:



   X   720.000

   X   480.000



                                                            X   620.000
                                                X  1500.000                                                          X   500.000
                                                X      .000
                                                       .000
                                                                                    X   715.000






                                                  X   450.000


                                                                                   .000
                                                                            X   430.000                               X  1220.000
                                                                                   .000



                                                          X   580.000
                                                                                                X   525.000

   X   420.000                                                                                      620.000
                                                                                                          XX  2300.000

                                                                           X   620.000

                                               X  550.000                                                         X  1900.000




                                                                                       X   500.000
                                                            X   450.000 X   470.000                 X   378.000
                                                   .000
                                             X  500.000
                               X  340.000       415.000
                                                                                                                  AM 4      436.000
                                                                                                                  CE 703   1300.000
                                                                                                                  GS 7      683.000
                                                                                                                  GS 14     460.000
                                                          X   500.000                                             S  7         .000
                                                                                                                  S 11         .000
                                                                                                                  S 12         .000
   09/26/75                                                CORE ANAL   S REPORT

                           HIGHEST     WET            BICARBONAT  AQUIFER C METHOD  1  FROM:           TO:





      X 19600.000

      X      .000



                                                                X  2530.000
                                                    X     .000                                                           X  2010.000
                                                    X     .000
                                                      1850.000
                                                                                        X  1630.000






                                                      X  2090.000


                                                                                       .000
                                                                                X   890.000                              X   863.000
                                                                                    950.000



                                                              X   500.000
                                                                                                    X  2290.000

      X  1510.000                                                                                      2650.000
                                                                                                              XX  2470.000

                                                                               X  2290.000

                                                  X  1960.000                                                          X  1600.000




                                                                                           X  1100.000
                                                                X  1040.000 X  1420.000                 X  3130.000
                                                       .000
                                                X      .000
                                  X  2620.000       780.000
                                                                                                                       AM 4      2190.000
                                                                                                                       CE 703    1500.000
                                                                                                                       GS 7       637.000
                                                                                                                       GS 14     1960.000
                                                              X   715.000                                              S 7          .000
                                                                                                                       S 11         .000
                                                                                                                       S 12         .000
```

```
09/26/75                                               CORE ANALYSIS REPORT
                        AVERAGE     WET           BICARBONAT  AQUIFER U METHOD  3  FROM:          TO:





   X   498.000

   X   616.000



                                                            X   509.000
                                                X      .000                                                         X   325.000
                                                X  2345.000
                                                   2451.000
                                                                                    X   847.000






                                                  X   521.667


                                                                               153.250
                                                                            X     .000                               X   490.000
                                                                               340.000



                                                          X   440.000
                                                                                               X   506.250

   X   846.000                                                                                          .000
                                                                                                         XX   240.000

                                                                           X   611.000

                                              X   403.333                                                         X   411.000




                                                                                       X     .000
                                                            X   641.000 X   518.000                016 X   211.250
                                                570.000
                                            X      .000
                              X   376.000       155.000
                                                                                                                  AM 4         .000
                                                                                                                  CE 703       .000
                                                                                                                  GS 7         .000
                                                                                                                  GS 14        .000
                                                          X   452.500                                             S 7          .000
                                                                                                                  S 11         .000
                                                                                                                  S 12         .000
```

```
09/26/75                                                 CORE ANALYSIS REPORT
                        AVERAGE     WET             BICARBONAT  AQUIFER L METHOD  3  FROM:            TO:



   X   825.000

   X   493.750


                                                             X  1898.000                                               X  2280.000
                                                 X      .000
                                                 X      .000
                                                    2468.000
                                                                                      X  1076.000







                                                    X  1530.000


                                                                                 1170.000
                                                                              X      .000                                X  2780.000
                                                                                     .000



                                                            X   840.000
                                                                                                  X   1830.000

                                                                                                      2420.000
    X  2980.000                                                                                              XX  2020.000


                                                                             X  1090.000
                                                                                                                      X  1990.000
                                                X  1320.000




                                                                                          X   720.000
                                                              X  1330.000  X   456.250                 X   300.000
                                                  384.167
                                              X   775.000
                                X   421.000          .000                                                             AM 4          .000
                                                                                                                      CE 703        .000
                                                                                                                      GS 7          .000
                                                                                                                      GS 14         .000
                                                                                                                      S 7           .000
                                                            X  1010.000                                               S 11          .000
                                                                                                                      S 12          .000
                                                                                     1170.000
                                                                                  X      .000                                X  2780.000
                                                                                         .000



                                                                X   840.000
                                                                                                       X 1830.000

         X  2980.000                                                                                     2420.000
                                                                                                                XX   2020.000

                                                                                 X  1090.000

                                                    X  1320.000                                                          X  1990.000




                                                                                             X   720.000
                                                                  X  1330.000 X   525.000                 X   330.000
                                                      520.000
                                                  X   840.000
                                    X   590.000          .000
                                                                                                                         AM 4         .000
                                                                                                                         CE 703       .000
                                                                                                                         GS 7         .000
                                                                                                                         GS 14        .000
                                                                X  1010.000                                              S 7          .000
                                                                                                                         S 11         .000
                                                                                                                         S 12         .000







      09/26/75                                                CORE ANALYSIS REPORT

                              AVERAGE     WET            CHLORIDE    AQUIFER U METHOD  3  FROM:           TO:





         X    20.000

         X    21.620



                                                                  X    10.359
                                                      X      .000                                                          X    14.000
                                                      X    52.500
                                                           60.000
                                                                                          X    14.520
```

```
09/26/75                                                 CORE ANALYSIS REPORT

                         AVERAGE     WET            CHLORIDE     AQUIFER L METHOD  3  FROM:           TO:





   X     6.899

   X    14.900



                                                              X    55.800
                                                 X      .000                                                           X    48.000
                                                 X      .000
                                                      52.000
                                                                                      X    29.400






                                                   X     18.000


                                                                                   23.000
                                                                              X       .000                               X    75.000
                                                                                      .000



                                                            X    14.000
                                                                                                   X    89.000

   X    96.000                                                                                         160.000
                                                                                                             XX   145.000

                                                                             X    21.000

                                                X    27.000                                                           X    88.000




                                                                                          X    51.000
                                                              X    41.000 X     9.375                  X    10.280
                                                   15.267
                                              X    20.000
                               X    13.560           .000
                                                                                                                      AM 4          .000
                                                                                                                      CE 703        .000
                                                                                                                      GS 7          .000
                                                                                                                      GS 14         .000
                                                            X    41.000                                               S 7           .000
                                                                                                                      S 11          .000
                                                                                                                      S 12          .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        AVERAGE     WET            SIL DIOXID  AQUIFER U METHOD  3  FROM:           TO:






   X     6.779

   X    23.600




                                                            X    24.600
                                                 X     .000                                                           X     2.599
                                                 X   30.500
                                                     18.660
                                                                                     X   55.400






                                                   X    18.667


                                                                                   3.950
                                                                             X      .000                               X    18.667
                                                                                   9.399



                                                           X    25.400
                                                                                                 X    20.750

    X    44.800                                                                                          .000
                                                                                                           XX     5.649

                                                                            X    51.400

                                               X    12.667                                                          X    19.600



                                                                                        X      .000
                                                             X    53.600 X    34.940                 X      .500
                                                  36.750
                                             X      .000
                               X    17.400        27.000
                                                                                                                    AM 4         .000
                                                                                                                    CE 703       .000
                                                                                                                    GS 7         .000
                                                                                                                    GS 14        .000
                                                           X    35.833                                              S 7          .000
                                                                                                                    S 11         .000
                                                                                                                    S 12         .000
```

```
09/26/75                                                CORE ANALYSIS REPORT

                        AVERAGE     WET            SIL DIOXID  AQUIFER L METHOD  3  FROM:           TO:



   X    28.000

   X    12.025



                                                            X     9.340
                                                X      .000                                                          X    11.000
                                                X      .000
                                                     10.080
                                                                                    X    23.000





                                                  X    11.000


                                                                                 17.000
                                                                            X      .000                               X    14.000
                                                                                   .000



                                                          X    16.000
                                                                                                X     4.699
   X    14.000                                                                                       14.000
                                                                                                          XX     5.899

                                                                           X     8.699

                                              X    11.000                                                          X    11.000




                                                                                       X    16.000
                                                            X    13.000 X    12.500                 X     1.419
                                                 3.083
                                            X    4.600
                              X     4.279         .000
                                                                                                                  AM 4          .000
                                                                                                                  CE 703        .000
                                                                                                                  GS 7          .000
                                                                                                                  GS 14         .000
                                                          X    16.000                                             S 7           .000
                                                                                                                  S 11          .000
                                                                                                                  S 12          .000
```

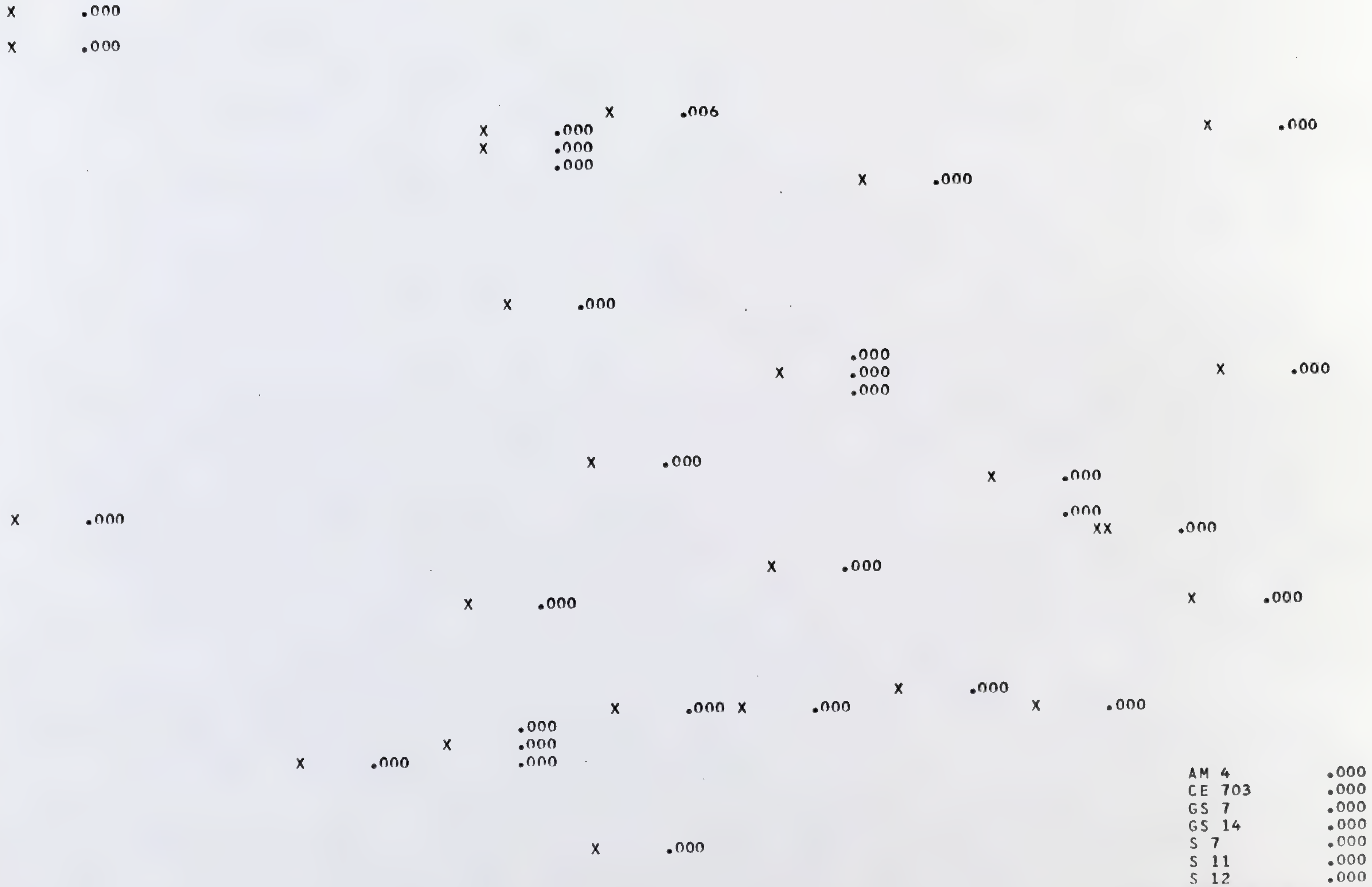
```
09/26/75                                                CORE ANALYSIS REPORT

                        AVERAGE     WET   .        MAGNESIUM   AQUIFER U METHOD  3  FROM:           TO:





   X    72.800

   X   140.000



                                                            X    24.400
                                                X      .000                                                          X   36.000
                                                X    20.000
                                                      6.539
                                                                                    X   113.000






                                                  X    46.000


                                                                                70.225
                                                                            X     .000                                X   51.667
                                                                                56.000



                                                          X    76.800
                                                                                                X   76.750

   X   106.600                                                                                            .000
                                                                                                         XX    39.250

                                                                           X   46.400

                                              X   65.333                                                          X    37.000




                                                                                      X      .000
                                                            X   34.780 X   51.000                 X    36.750
                                                61.750
                                            X     .000
                              X   30.400        19.500

                                                                                                                  AM 4         .000
                                                                                                                  CE 703       .000
                                                                                                                  GS 7         .000
                                                                                                                  GS 14        .000
                                                          X   48.333                                              S 7          .000
                                                                                                                  S 11         .000
                                                                                                                  S 12         .000
   09/26/75                                                CORE ANALYSIS REPORT

                           AVERAGE     WET            MAGNESIUM   AQUIFER L METHOD  3  FROM:           TO:



       X   14.000

       X  117.500



                                                                X     6.339                                              X    29.000
                                                    X      .000
                                                    X      .000
                                                          4.499
                                                                                        X    79.200






                                                      X    13.000


                                                                                     21.000                                X    17.000
                                                                                X      .000
                                                                                       .000



                                                              X    12.000                        X     6.199

                                                                                                          7.199
       X    45.000                                                                                           XX    20.000

                                                                                X    11.000
                                                                                                                        X     4.799
                                                   X    8.199




                                                                                            X     7.899
                                                                 X    13.000 X    24.000                X    39.800
                                                      45.167
                                                 X    50.500
                                   X    29.800          .000                                                            AM 4         .000
                                                                                                                        CE 703       .000
                                                                                                                        GS 7         .000
                                                                                                                        GS 14        .000
                                                                                                                        S 7          .000
                                                               X    28.000                                              S 11         .000
                                                                                                                        S 12         .000
```

```
09/26/75                                                  CORE ANALYSIS REPORT

                         AVERAGE     WET             ARSENIC     AQUIFER U METHOD   3  FROM:            TO:





    X      .000

    X      .000



                                                               X      .008
                                                   X      .000                                                            X      .000
                                                   X      .000
                                                          .000
                                                                                        X      .000






                                                     X      .000


                                                                                       .000
                                                                                X      .000                                X      .000
                                                                                       .000



                                                              X      .000
                                                                                                     X      .002

     X      .000                                                                                            .000
                                                                                                               XX      .000

                                                                               X      .004

                                                 X      .000                                                             X      .000




                                                                                            X      .000
                                                                X      .000 X      .000                  X      .000
                                                       .007
                                                X      .000
                                 X      .008           .000
                                                                                                                        AM 4          .000
                                                                                                                        CE 703        .000
                                                                                                                        GS 7          .000
                                                                                                                        GS 14         .000
                                                              X      .000                                               S 7           .000
                                                                                                                        S 11          .000
                                                                                                                        S 12          .000
```

09/26/75

CORE ANALYSIS REPORT

AVERAGE WET ARSENIC AQUIFER L METHOD 3 FROM: TO:

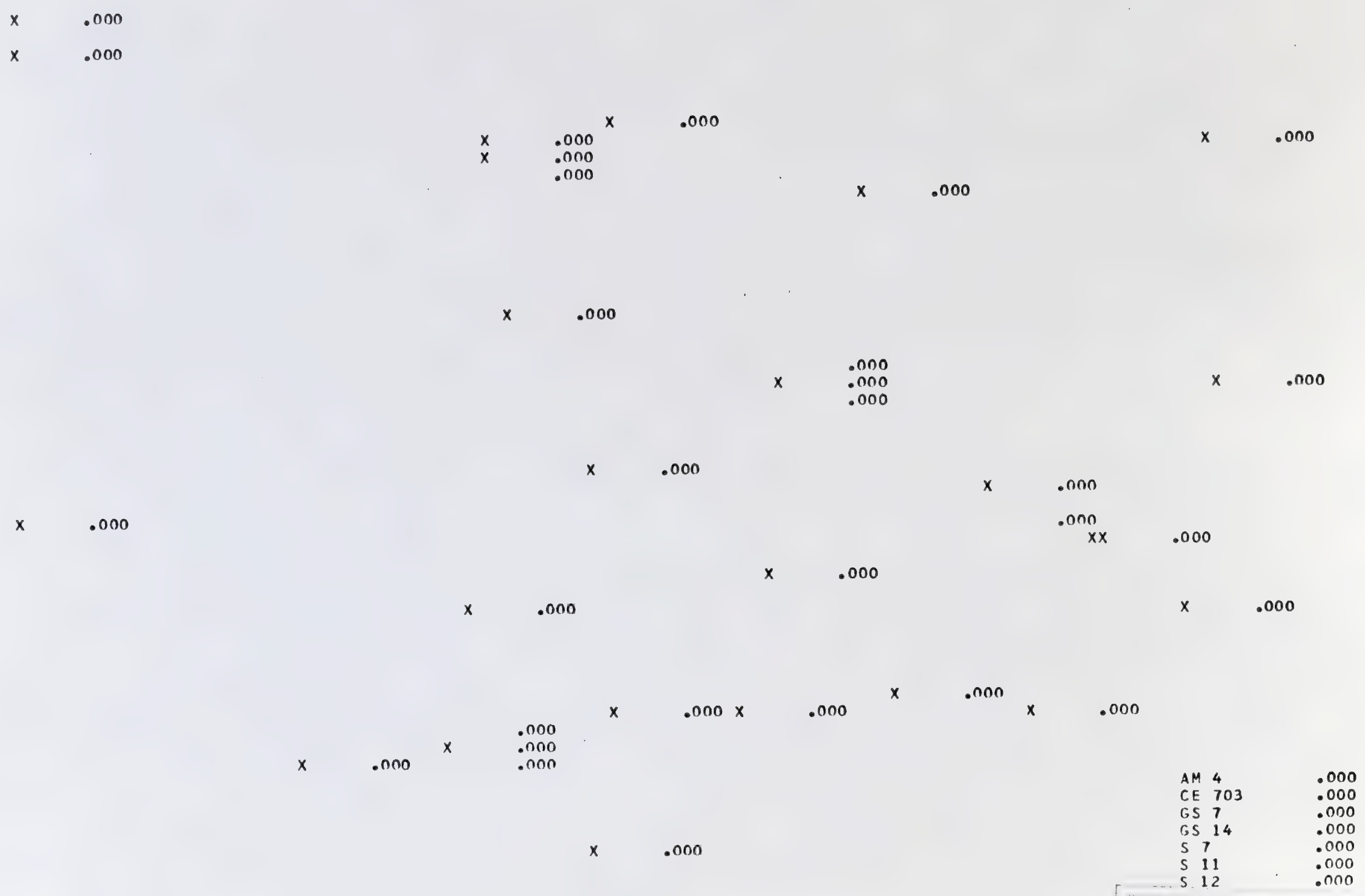


AM 4	.000
CE 703	.000
GS 7	.000
GS 14	.000
S 7	.000
S 11	.000
S 12	.000

09/26/75

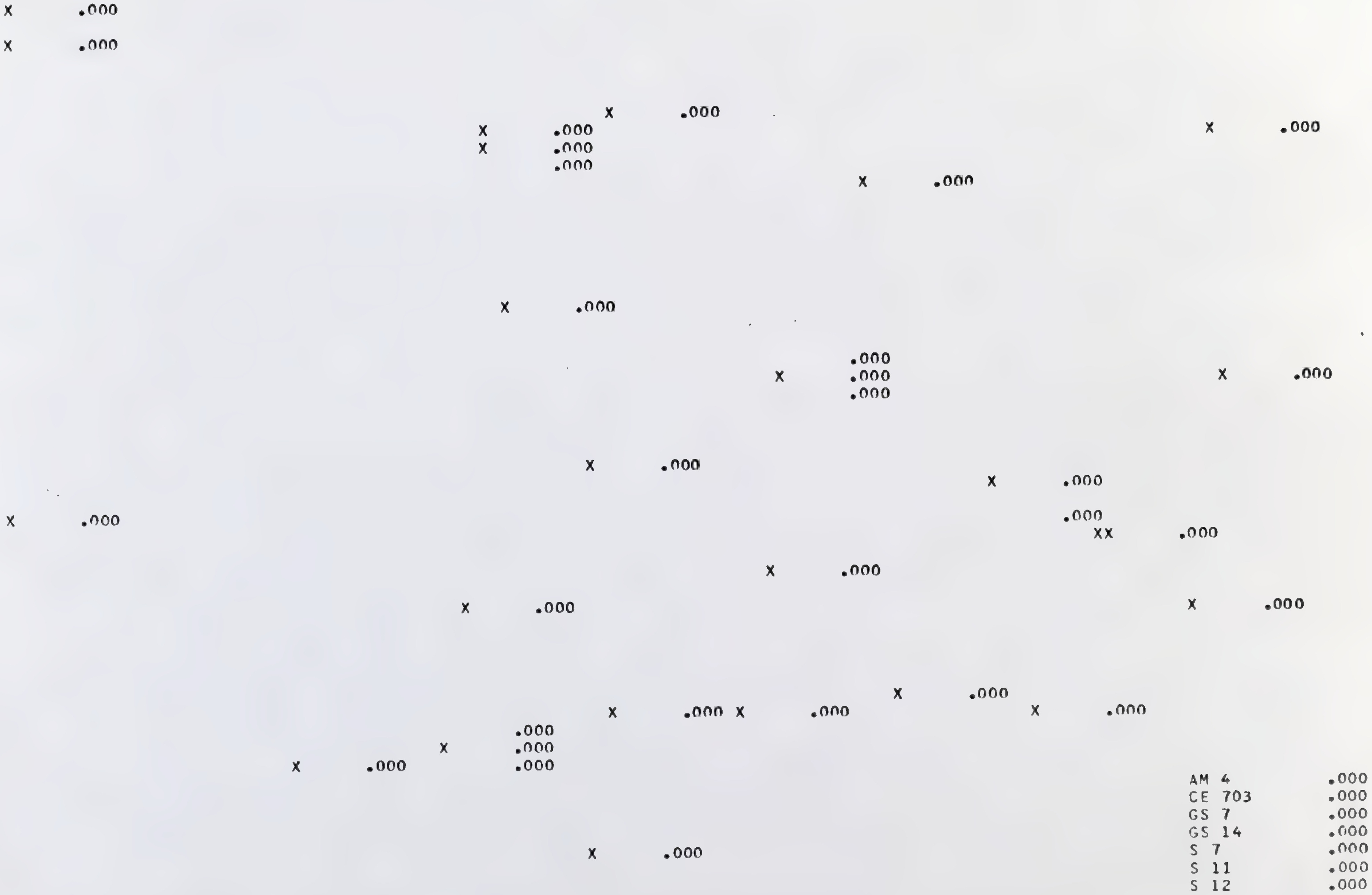
CORE ANALYSIS REPORT

AVERAGE WET BARIUM AQUIFER L METHOD 3 FROM: TO:



09/26/75 CORE ANALYSIS REPORT

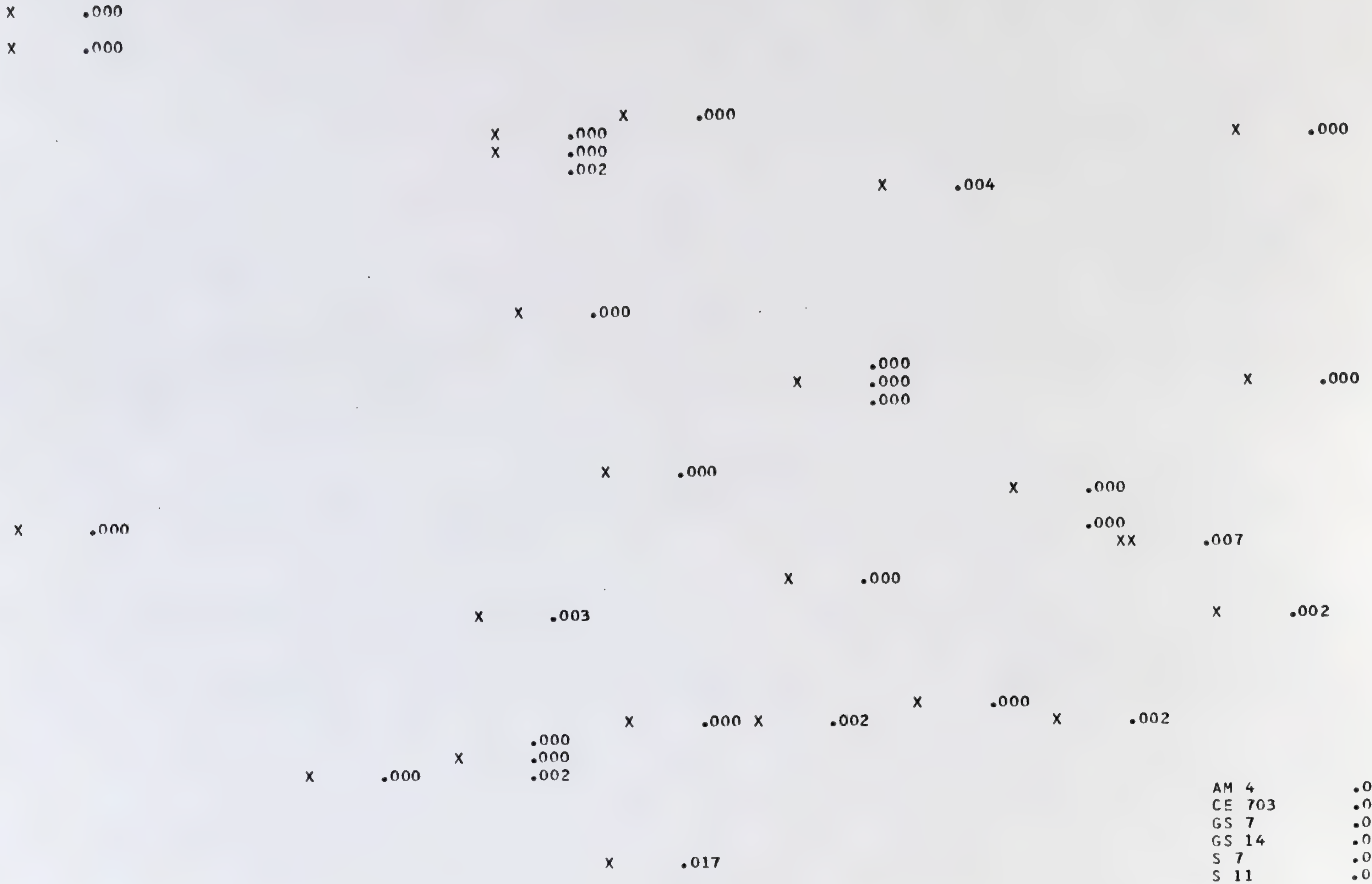
AVERAGE WET BARIUM AQUIFER U METHOD 3 FROM: TO:



09/26/75

CORE ANALYSIS REPORT

AVERAGE WET CADMIUM AQUIFER U METHOD 3 FROM: TO:


X .000
X .000
X .000
X .000
X .000
.002
X .000
X .004
X .000
.000
X .000
.000
X .000
X .000
X .000
X .000
.000
XX .007
X .000
X .003
X .002
X .000
X .000 X .002
X .002
.000
X .000
X .000 .002
X .017

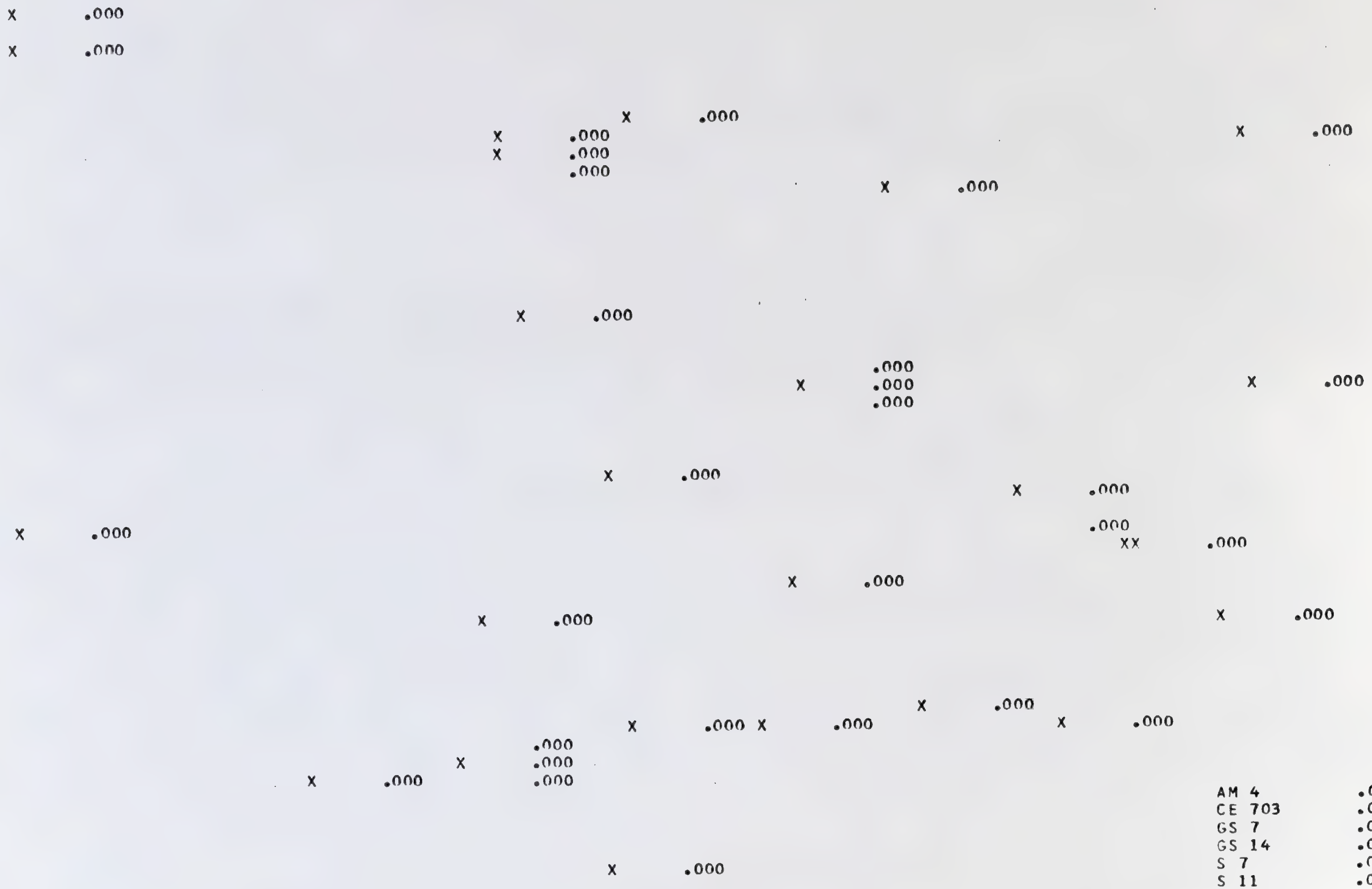
AM 4	.000
CE 703	.000
GS 7	.000
GS 14	.000
S 7	.000
S 11	.000
S 12	.000

```
    09/26/75                                               CORE ANALYSIS REPORT

                            AVERAGE     WET            CADMIUM     AQUIFER L METHOD  3  FROM:          TO:



        X     .000

        X     .002

                                                                X      .002
                                                    X      .000                                                        X      .000
                                                    X      .000
                                                           .002
                                                                                        X     .002




                                                      X      .000


                                                                                       .000
                                                                                X      .000                                  X      .000
                                                                                       .000


                                                              X      .000
                                                                                                    X      .000
        X      .000                                                                                        .000
                                                                                                             XX       .000

                                                                               X      .000

                                                  X      .000                                                              X      .000



                                                                                           X       .000
                                                                X      .000 X      .001                     X     .000
                                                       .000
                                                X      .000
                                   X     .000          .000
                                                                                                                      AM 4         .000
                                                                                                                      CE 703       .000
                                                                                                                      GS 7         .000
                                                                                                                      GS 14        .000
                                                              X      .000                                             S 7          .000
                                                                                                                      S 11         .000
                                                                                                                      S 12         .000
```

09/26/75

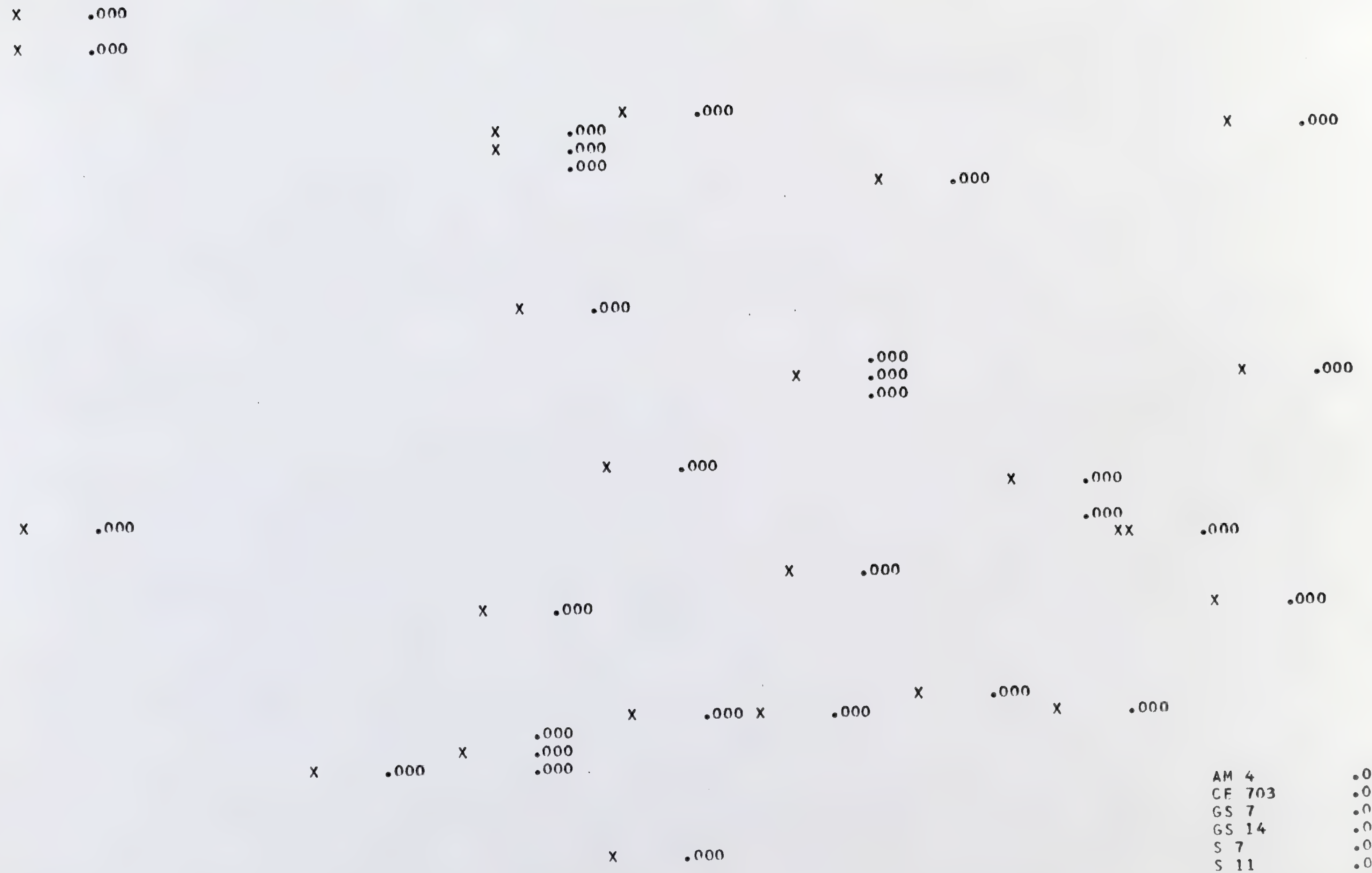
CORE ANALYSIS REPORT

AVERAGE WET CHROMIUM AQUIFER L METHOD 3 FROM: TO:



AM 4	.000
CE 703	.000
GS 7	.000
GS 14	.000
S 7	.000
S 11	.000
S 12	.000

```
09/26/75                                  CORE ANALYSIS REPORT
                    AVERAGE     WET          CYANIDE     AQUIFER U METHOD  3  FROM:            TO:
```

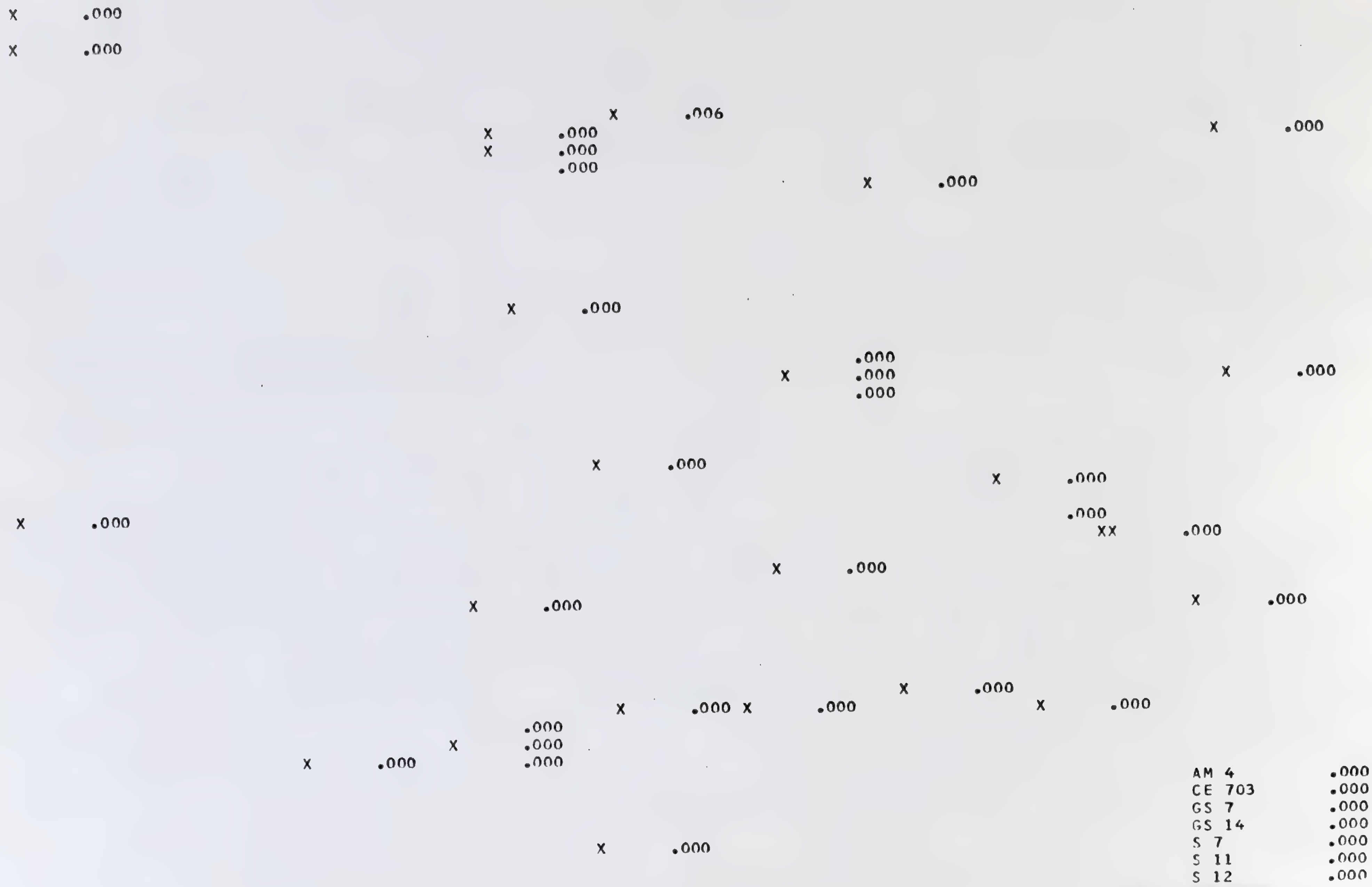

X .000
X .000
X .000
X .000
X .000
.000
X .000
X .000
X .000
.000
X .000
.000
X .000
X .000
X .000
X .000
.000
XX .000
X .000
X .000
X .000
X .000 X .000
X .000
X .000
.000
X .000
.000
X .000
X .000

```
AM 4          .000
CE 703        .000
GS 7          .000
GS 14         .000
S 7           .000
S 11          .000
S 12          .000
```

09/26/75

CORE ANALYSIS REPORT

AVERAGE WET CYANIDE AQUIFER L METHOD 3 FROM: TO:


X .000
X .000
X .006
X .000
X .000
.000
X .000
X .000
X .000
X .000
.000
.000
X .000
X .000
X .000
X .000
.000
XX .000
X .000
X .000
X .000
X .000
X .000 X .000
X .000
X .000
.000
X .000
X .000
.000
X .000
AM 4 .000
CE 703 .000
GS 7 .000
GS 14 .000
S 7 .000
S 11 .000
S 12 .000

```
    09/26/75                                                 CORE ANALYSIS REPORT
                            AVERAGE     WET             LEAD        AQUIFER L METHOD  3  FROM:            TO:



       X      .399

       X      .364


                                                                  X      .179                                               X      .299
                                                     X      .000
                                                     X      .000
                                                            .363
                                                                                          X      .863






                                                        X      .199


                                                                                         .089
                                                                                  X      .000                                X     2.799
                                                                                         .000


                                                                X      .099                            X      .500
                                                                                                              .059
        X    20.000                                                                                            XX      .199
                                                                                  X     .039
                                                                                                                          X      .500
                                                    X      .599


                                                                                              X      .099         .25
                                                                   X     .059  X      .055                 X     ~~5.204~~
                                                         .233
                                                  X      .051
                                    X     2.539          .000                                                             AM 4          .000
                                                                                                                          CE 703        .000
                                                                                                                          GS 7          .000
                                                                                                                          GS 14         .000
                                                                                                                          S 7           .000
                                                                 X      .099                                              S 11          .000
                                                                                                                          S 12          .000
```

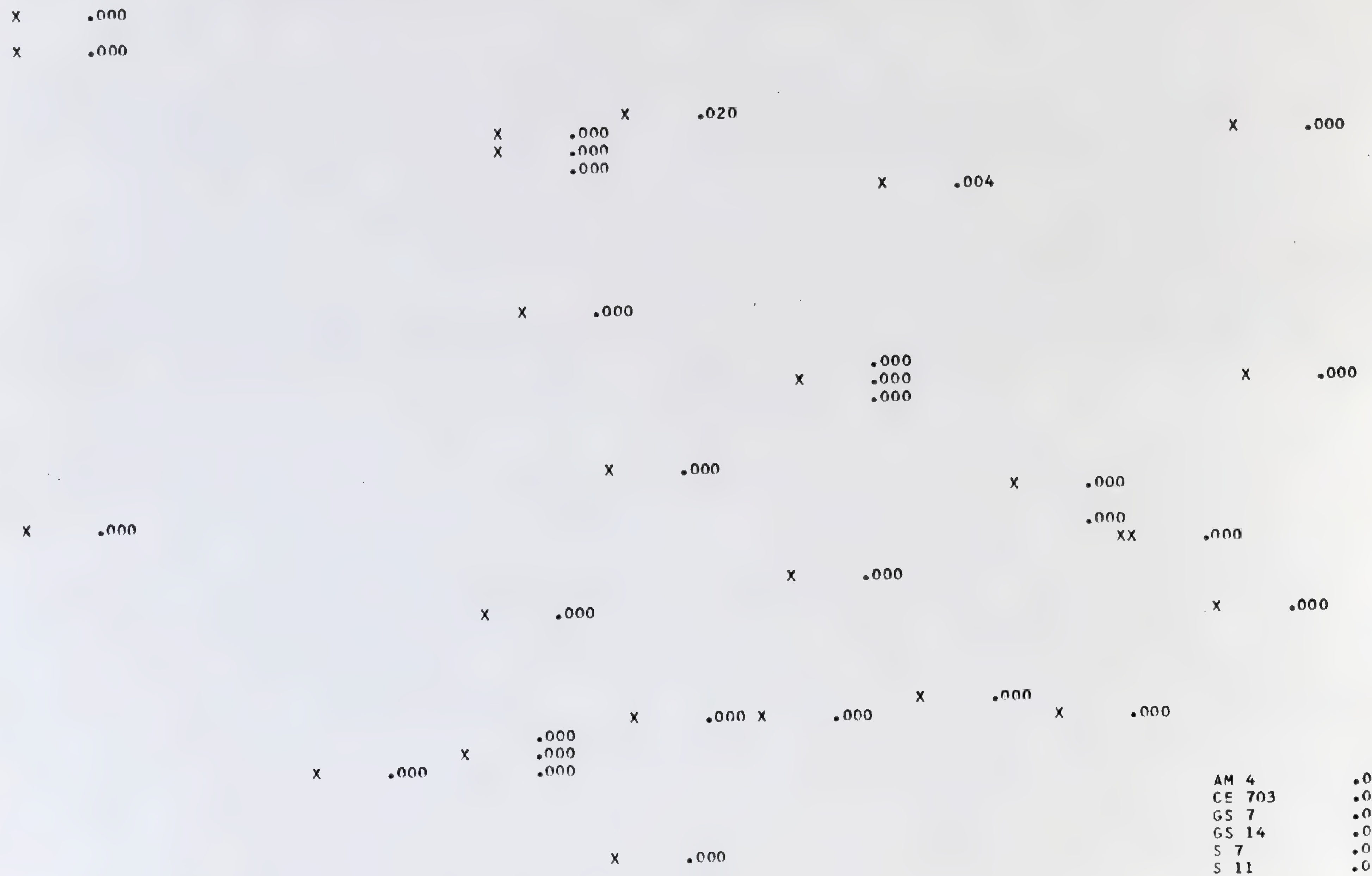
```
09/26/75                                              CORE ANALYSIS REPORT

                       AVERAGE     WET           SILVER      AQUIFER U METHOD  3  FROM:         TO:




   X      .004

   X      .002



                                                          X      .008
                                               X     .000                                                       X     .000
                                               X     .000
                                                     .012
                                                                                 X      .000






                                                 X     .026


                                                                                .000
                                                                          X     .000                              X     .000
                                                                                .079



                                                        X      .018
                                                                                             X     .002

    X     .004                                                                                     .000
                                                                                                      XX      .000

                                                                         X     .012

                                             X     .010                                                        X      .000




                                                                                    X      .000
                                                           X     .020 X      .000                X     .000
                                                  .000
                                           X      .000
                              X     .000          .025
                                                                                                               AM 4        .000
                                                                                                               CE 703      .000
                                                                                                               GS 7        .000
                                                                                                               GS 14       .000
                                                         X     .017                                            S 7         .000
                                                                                                               S 11        .000
                                                                                                               S 12        .000
```

```
09/26/75                                                CORE ANALYSIS REPORT
                        AVERAGE     WET            SILVER      AQUIFER U METHOD  3  FROM:            TO:





    X     .004
    X     .002


                                                             X      .008                                              X      .000
                                                 X      .000
                                                 X      .000
                                                        .012
                                                                                     X      .000






                                                   X      .026


                                                                                    .000
                                                                              X     .000                                X      .000
                                                                                    .079



                                                           X      .018
                                                                                                  X      .002
                                                                                                         .000
    X      .004                                                                                             XX      .000

                                                                             X      .012

                                                                                                                     X      .000
                                                X     .010



                                                                                         X      .000
                                                              X      .020 X      .000                 X      .000
                                                     .000
                                              X      .000
                                X     .000           .025                                                            AM 4         .000
                                                                                                                     CE 703       .000
                                                                                                                     GS 7         .000
                                                                                                                     GS 14        .000
                                                                                                                     S 7          .000
                                                            X      .017
                                                                                                                     S 11         .000
                                                                                                                     S 12         .000
```

09/26/75

CORE ANALYSIS REPORT

AVERAGE WET SILVER AQUIFER L METHOD 3 FROM: TO:

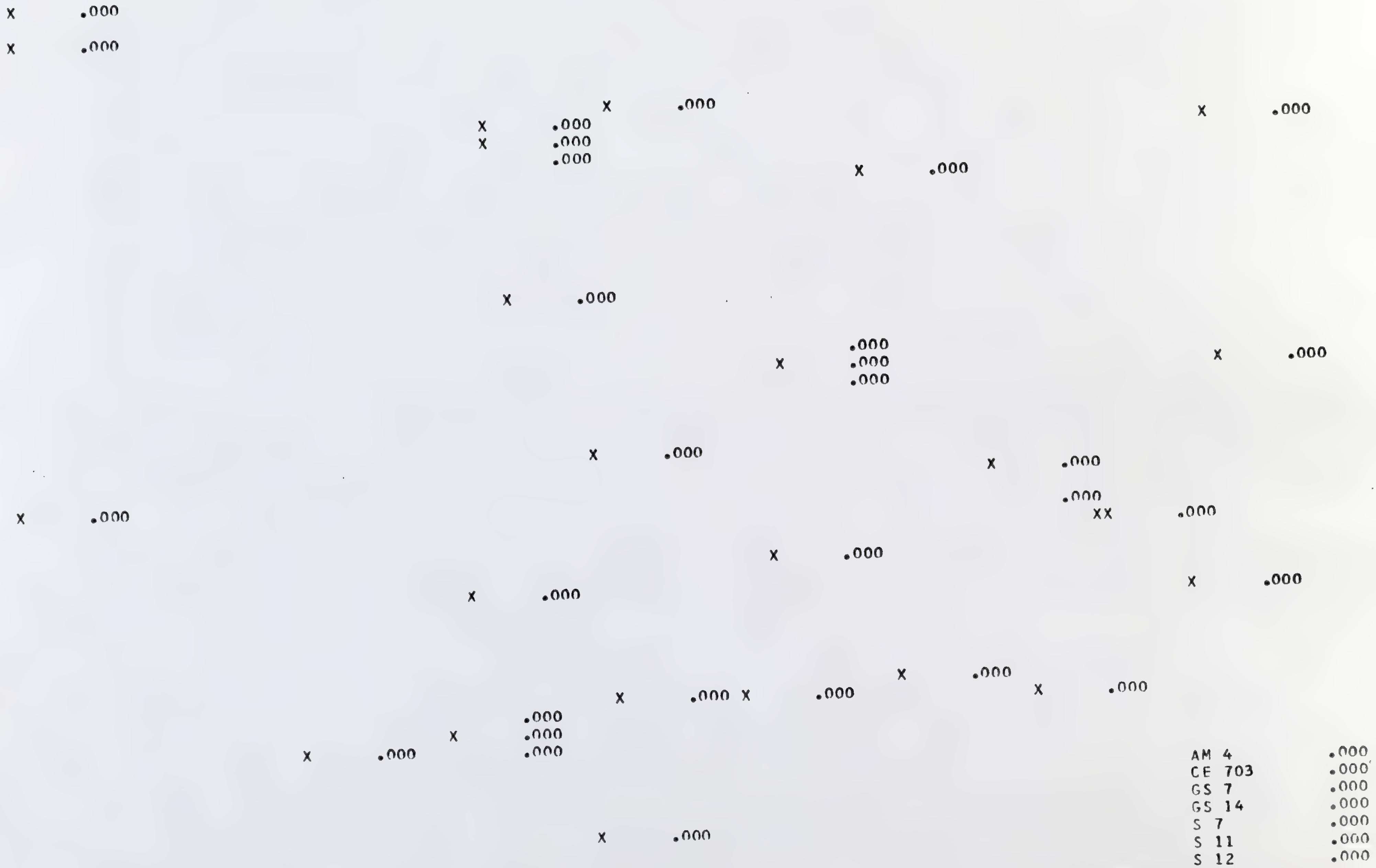

X .000
X .000
X .020
X .000
X .000
.000
X .000
X .004
X .000
X .000
.000
.000
X .000
X .000
X .000
.000
X .000
XX .000
X .000
X .000
X .000
X .000
X .000 X .000
X .000
X .000
X .000
.000
.000
X .000
X .000

AM 4	.000
CE 703	.000
GS 7	.000
GS 14	.000
S 7	.000
S 11	.000
S 12	.000

09/26/75

CORE ANALYSIS REPORT

AVERAGE SPECTROGRAPHIC CHROMIUM AQUIFER U METHOD 3 FROM: TO:

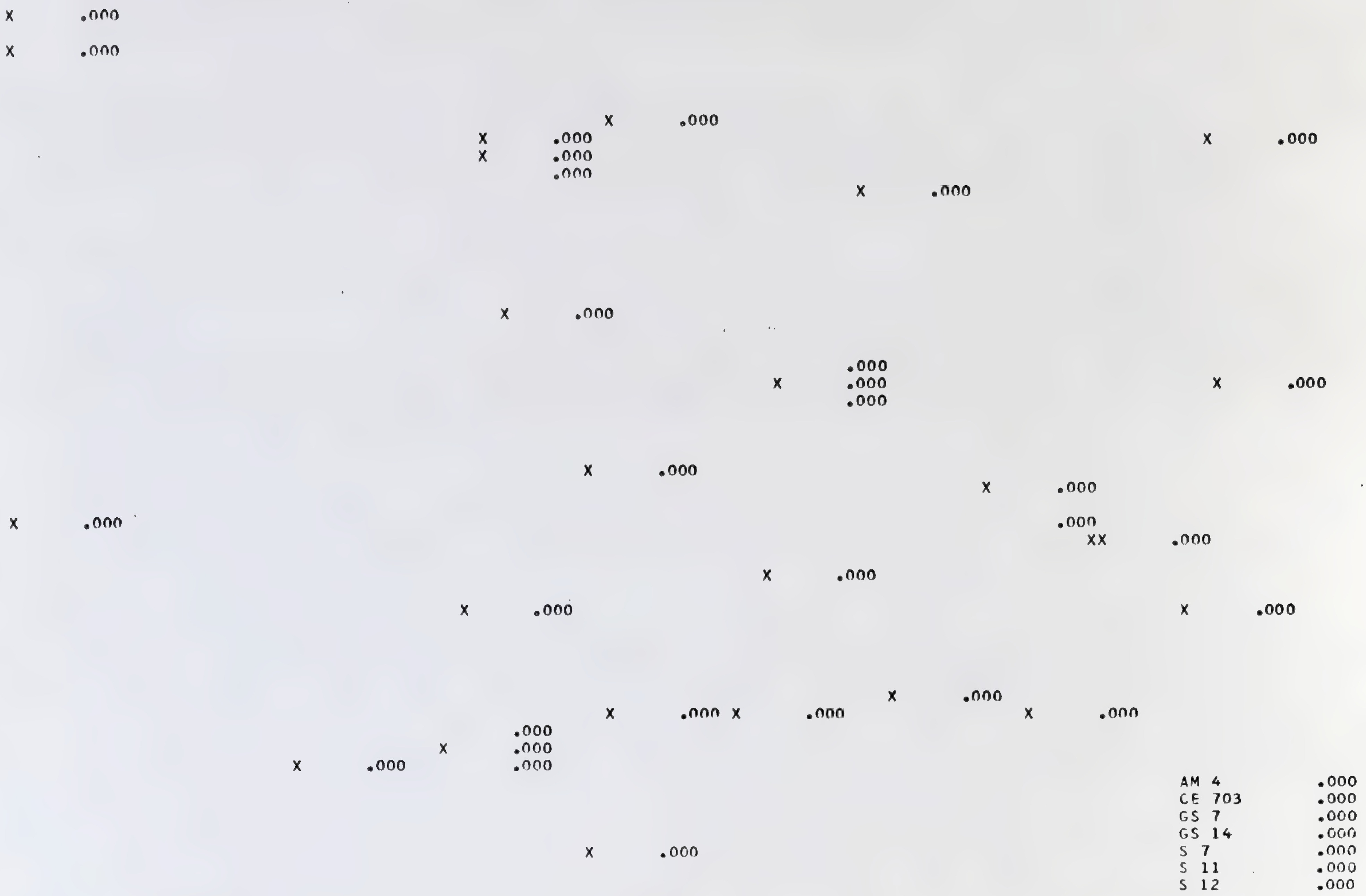


AM 4	.000
CE 703	.000
GS 7	.000
GS 14	.000
S 7	.000
S 11	.000
S 12	.000

09/26/7

CORE ANALYSIS REPORT

AVERAGE SPECTROGRAPHIC CHROMIUM AQUIFER L METHOD 3 FROM: TO:

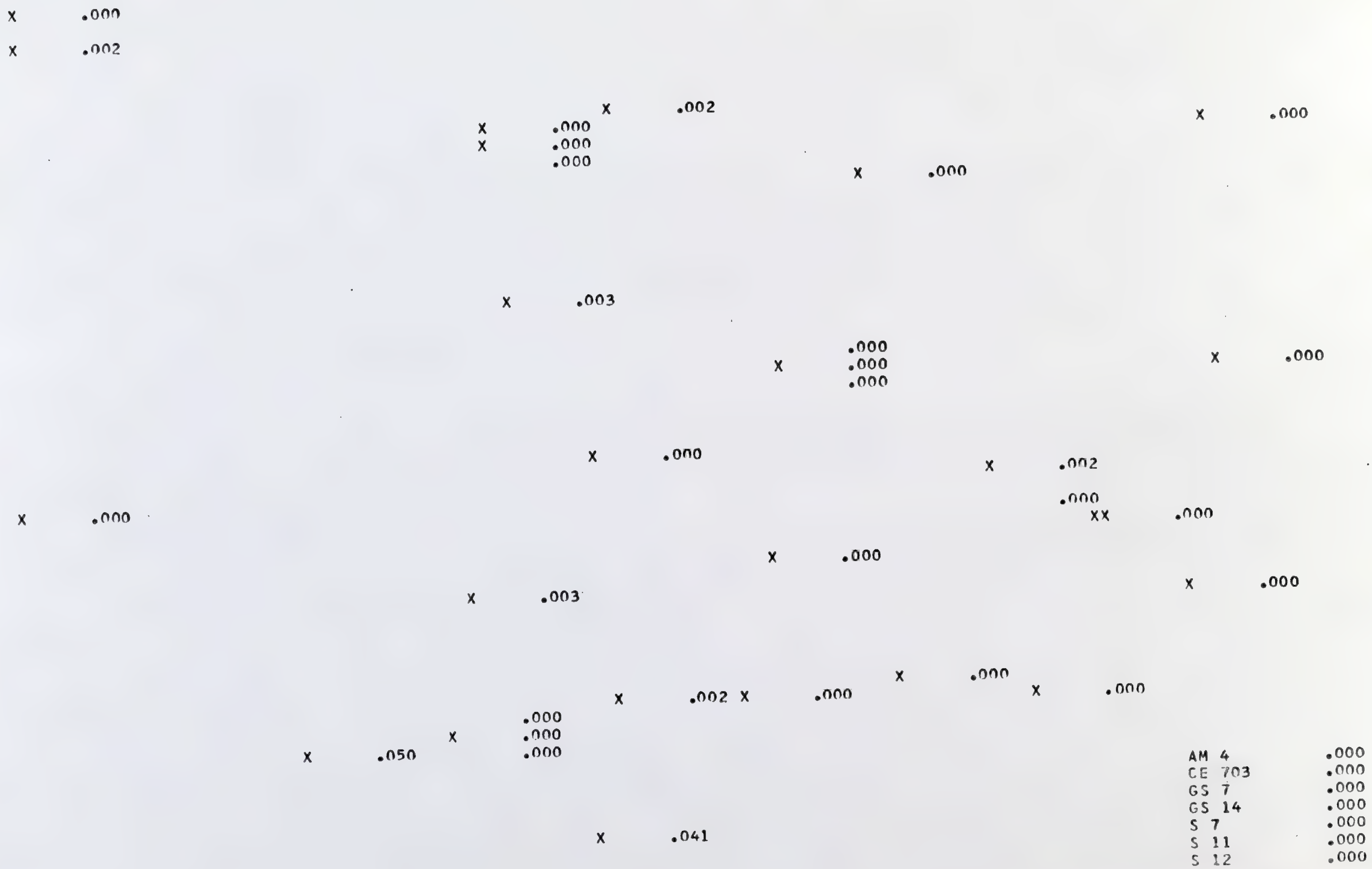

X .000
X .000
X .000
X .000
X .000
.000
X .000
X .000
X .000
.000
X .000
.000
X .000
X .000
X .000
X .000
.000
XX .000
X .000
X .000
X .000
X .000
X .000 X .000
X .000
.000
X .000
X .000 .000
X .000

AM 4	.000
CE 703	.000
GS 7	.000
GS 14	.000
S 7	.000
S 11	.000
S 12	.000

09/26/75

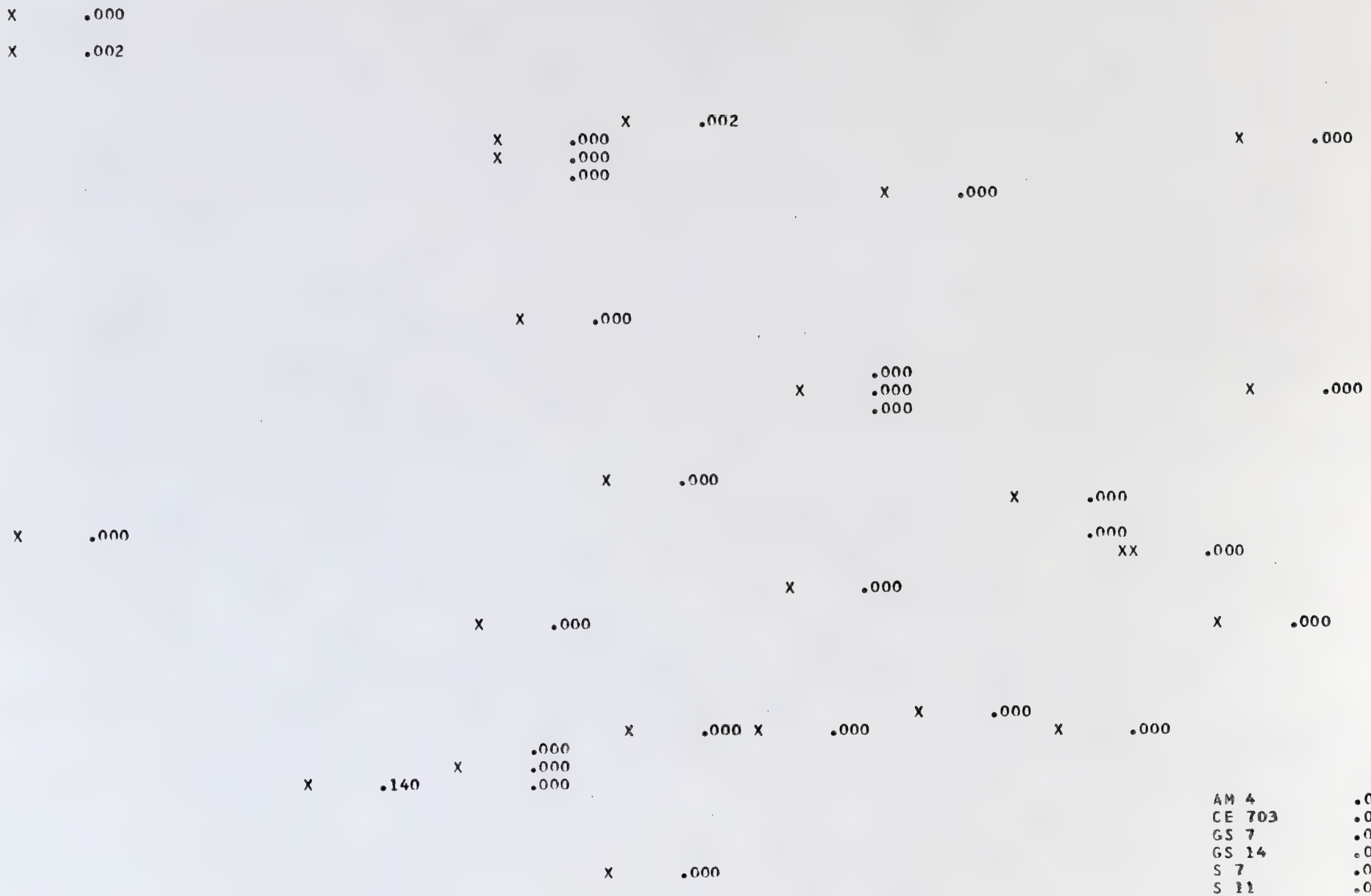
CORE ANALYSIS REPORT

AVERAGE SPECTROGRAPHIC LEAD AQUIFER U METHOD 3 FROM: TO:


X .000
X .002
X .002
X .000
X .000
X .000
.000
X .000
X .003
X .000
.000
.000
X .000
X .000
X .002
.000
XX .000
X .000
X .000
X .003
X .000
X .000
X .002 X .000
X .000
.000
X .000
X .050 .000
X .041
AM 4 .000
CE 703 .000
GS 7 .000
GS 14 .000
S 7 .000
S 11 .000
S 12 .000

09/26/75 CORE ANALYSIS REPORT

AVERAGE SPECTROGRAPHIC LEAD AQUIFER L METHOD 3 FROM: TO:



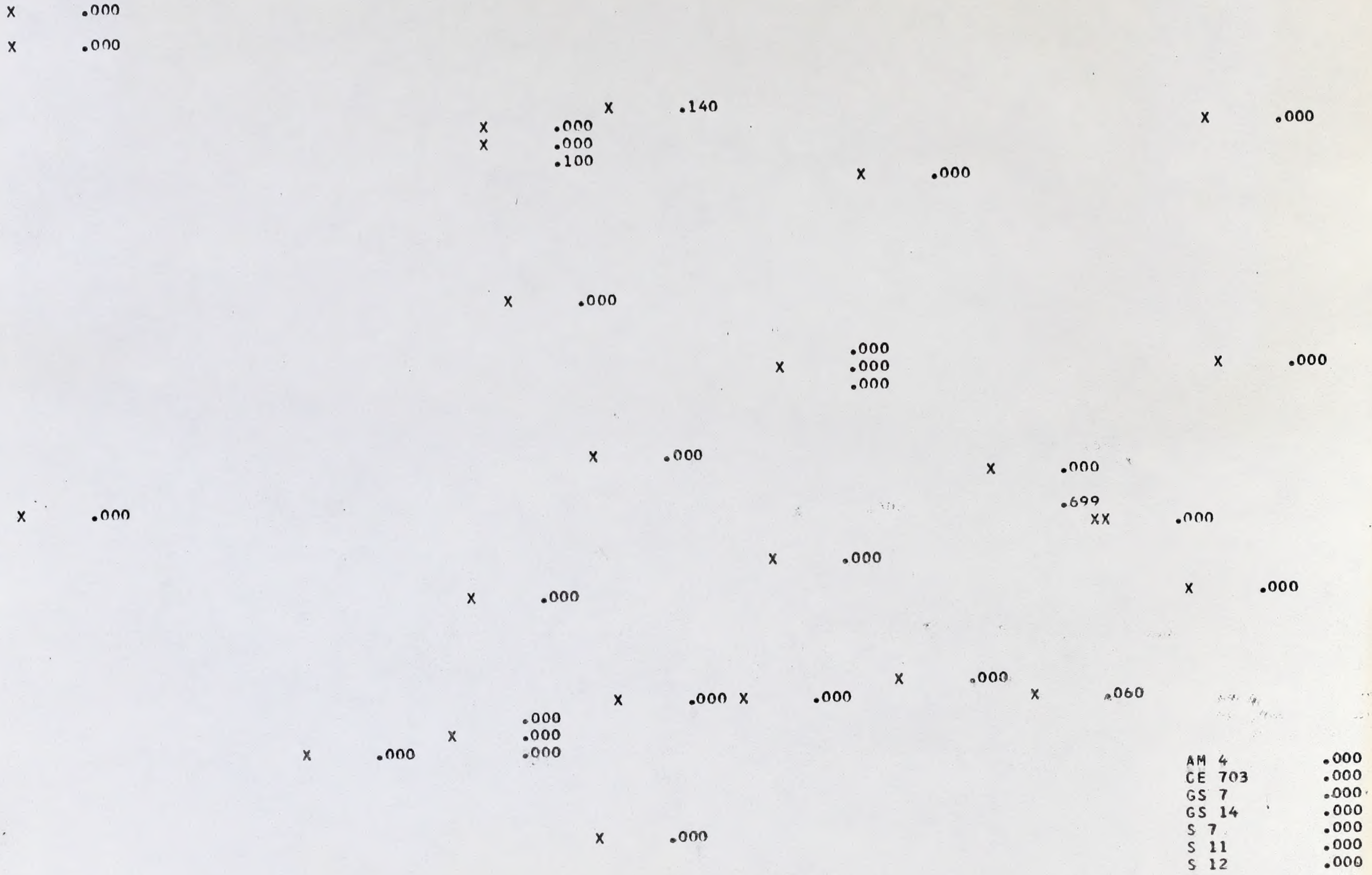
AM 4	.000
CE 703	.000
GS 7	.000
GS 14	.000
S 7	.000
S 11	.000
S 12	.000

```
09/26/75                                                CORE ANALYSIS REPORT
                        AVERAGE     SPECTROGRAPHIC RADIUM      AQUIFER U METHOD  3  FROM:           TO:



   X      .020

   X      .000


                                                             X      .000
                                                                                                                      X      .000
                                                 X      .000
                                                 X      .250
                                                        .100
                                                                                     X      .060







                                                   X      .033

                                                                                    .000
                                                                                                                       X      .000
                                                                             X      .000
                                                                                    .000



                                                           X      .000
                                                                                                 X      .000

                                                                                                        .000
    X      .020                                                                                            XX      .000

                                                                            X      .080
                                                                                                                    X      .000
                                                X      .033




                                                                                         X      .000
                                                              X      .000 X      .000                 X      .025
                                                     .000
                                              X      .000
                                X      .060          .000                                                           AM 4         .000
                                                                                                                    CE 703       .000
                                                                                                                    GS 7         .000
                                                                                                                    GS 14        .000
                                                                                                                    S 7          .000
                                                            X      .166                                             S 11         .000
                                                                                                                    S 12         .000
```

09/26/7

CORE A[illegible]SIS REPORT

AVERAGE SPECTROGRAPHIC RADIUM AQUIFER L METHOD 3 FROM: TO:


X .000
X .000
X .140
X .000
X .000
.100
X .000
X .000
X .000
.000
X .000
.000
X .000
X .000
X .000
X .000
.699
XX .000
X .000
X .000
X .000
X .000
X .000 X .000
X .060
.000
X .000
X .000 .000
X .000
AM 4 .000
CE 703 .000
GS 7 .000
GS 14 .000
S 7 .000
S 11 .000
S 12 .000

RBOSP PROGRESS REPORT